Pacific Cod Tagging and Stock Monitoring Off Southwest Vancouver Island, February-March 1979. (*Pacific Eagle* Groundfish Cruises 79-1 and 79-2)

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Pacific Cod Tagging and Stock Monitoring off Southwest Vancouver Island, February-March 1979. (PACIFIC EAGLE Groundfish Cruises 79-1 and 79-2)

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ABSTRACT

Foucher, R. P., W. R. Harling, R. M. Wallis, W. Shaw, and K. R. James. 1979. Pacific cod tagging and stock monitoring off southwest Vancouver Island, February-March 1979. (PACIFIC EAGLE Groundfish cruises 79-1 and 79-2). Can. Data Rep. Fish. Aquat. Sci. 180: 79 p.

A commercial trawler was chartered for the periods February 14-27, and March 3-15, 1979. Principal purposes of the charters were to tag juvenile Pacific cod (Gadus macrocephalus) and monitor adult Pacific cod abundance on known spawning grounds during the February 1-March 31 trawl closure off southwest Vancouver Island.

Only 1,297 juvenile and adult Pacific cod were tagged and released, because of low cod abundance, adverse weather, and high incidence of dogfish (Squalus acanthias) in the trawl catches. Abundance of adult Pacific cod was low. Few schools were located by echo sounder, and 65 trawl catches averaged only 405 kg/hr. Bottom temperatures averaged 7.5°C (23-76 fm) in February, and 8.2°C (24-79 fm) in March.

Key words: Pacific cod, tagging, stock monitoring.

RÉSUMÉ

Foucher, k. P., W. R. Harling, R. M. Wallis, W. Shaw, and K. R. James. 1979. Pacific cod tagging and stock monitoring off southwest Vancouver Island, February-March 1979. (PACIFIC EAGLE Groundfish cruises 79-1 and 79-2). Can. Data Rep. Fish. Aquat. Sci. 180: 79 p.

Pendant les périodes du 14 au 27 février et du 3 au 15 mars 1979, on a affrété un chalutier privé, les objectifs principaux de ces affrètements étant le marquage de jeunes morues du Pacifique (Gadus macrocephalus) et le contrôle de l'abondance des adultes de cette espèce dans des aires de reproduction connues, au cours de la période où la pêche au chalut est interdite au sud-ouest de l'Île Vancouver (du 1er février au 31 mars).

On a réussi à marquer et a libérer seulement 1,297 spécimens jeunes et adultes de morue du Pacifique, à cause de la faible quantité de morue, du mauvais temps et de l'abondance de l'aiguillat (Squalus acanthias) dans les chaluts. Les morues adultes étaient peu nombreuses. On a localisé quelques bancs à l'échosondeur, et les 65 coups de chalut ont donné une moyenne de 405 kg/h seulement. La température au fond s'élevait en moyenne à 7.5° C (23-76 brasses) en février, et à 8.5° C (24-79 brasses) en mars.

Mots clés: morue du Pacifique, marquage, contrôle des stocks.

INTRODUCTION

This report describes two charter cruises to southwest Vancouver Island during February and March 1979. The first cruise, February 14-27, on the PACIFIC EAGLE, was scheduled primarily to tag juvenile Pacific cod for the purpose of delineating stocks in British Columbia waters and to estimate growth and mortality parameters. This is the first tagging of juvenile Pacific cod off southwest Vancouver Island. As time permitted, the spawning stock of Pacific cod was monitored during the closed season, February 1-March 31.

The primary purpose of the second trip, March 3-15, also on the PACIFIC EAGLE was to monitor the abundance of the Pacific cod spawning stocks during the closed season, February 1-March 31. Some effort was also directed to tagging juvenile Pacific cod.

This project was supported in part by funds from the Department of the Environment, Province of British Columbia.

METHODS AND MATERIALS

Tagging methods were essentially the same as previously reported (Foucher et al. 1979; Leaman et al. 1979). Two 780-l anaesthetic tanks were used. The recovery tanks were larger (2,427 l), and one of these was mounted on a frame hinged to the ship's rail so that it could be tipped up and the fish released without handling. The majority of fish were released in this manner, exceptions being when the number of fish tagged required use of a second recovery tank. Haul durations ranged from 9 to 45 min and averaged about 20 min.

Floy FD-68BC anchor tags were used as in the previous tagging. They were orange in color with a number series from C 00000 to C 01792.

Pacific cod stock monitoring, carried out mostly during the second cruise, consisted of an irregular and repetitive pattern of echo-sounding tracklines over the important fishing grounds. Hauls were made when signs of fish showed on the sounder and, at times, when few or no fish were showing.

A JRC Zoom echo sounder equipped with a bottom expander was used to locate and record schools of fish. A high-lift Engel trawl with a liner (mesh size = 1 in) was towed at a speed of 2-3 knots.

Untagged Pacific cod were sampled for length, sex, gonad condition and parabranchial cysts. Pollock and rockfish were sampled when possible. Fork lengths of Pacific cod and pollock were measured to the nearest cm. Rockfish were measured to the nearest lower cm (e.g. 40.00-40.99 = 40 cm).

RESULTS AND DISCUSSION

A total of 69 hauls was completed of which 65 were usable. Following is a summary of the total catch by species:

Species	Catch (kg)	%
Dogfish	34,988	61.8
Pacific cod	8,775	15.5
Ratfish	8,243	14.6
Skates	697	1.2
Rock sole	665	1.2
English sole	527	0.9
S. proriger	519	0.9
Rex sole	442	0.8
Other	1,759	3.1
Total	56,615	100.0

Detailed records, by haul, of bridge-log information and species composition of catches are contained in Appendix Tables 1 and 2. Most of the hauls were located on the Firing Range, Cabbage Patch and Southwest Corner Grounds (Figs. 1-3).

A total of 1,297 Pacific cod was tagged during February and March from 38 hauls, with a maximum of 133 released in a single haul (Table 1). Size composition, by haul, of cod tagged and released is contained in Appendix Table 3.

Few juvenile Pacific cod were tagged. About half of the fish tagged were in a distinct mode between 36 and 46 cm in length (age 2), and nearly half were longer and presumably older (Fig. 4). The incidence of parabranchial cysts in tagged fish was 22%.

Dogfish were present in 34 of the 38 hauls from which Pacific cod were tagged and sometimes made up a large proportion of the catch. Abrasion from their rough skin caused considerable scale loss to Pacific cod, especially to the smaller specimens.

During the February charter, it was noted that those fish which were at the bottom of the anaesthetic tank when dipped out for tagging had a better rate of recovery than those which were floating. Towards the end of the February charter, and throughout the March charter, each fish was recorded as a 'floater' or 'sinker' at tagging, referring to its condition in the anaesthetic tank. The mortality rate for 457 tagged floaters was 45% compared to only 9% for 695 tagged sinkers (Table 2). This indicates that sinkers had a much better chance of recovery.

Size composition by sex, gonad condition, and gonad condition criteria for untagged Pacific cod are contained in Appendix Tables 4-6.

Pollock were sampled for length and sex from four hauls (Appendix Table 7). Otoliths, as well as length and sex data were collected from five species of rockfish (Appendix Table 8). Table 3 summarizes all sampling completed.

Monitoring Pacific cod abundance on the known spawning grounds in Area 3C i.e., Amphitrite Bank (Firing Range-Cabbage Patch) and Clo-oose, during February and March, indicated that abundance was very low. Sounder recordings showed very few concentrations of fish. This may have been due, to some extent, to rough weather conditions causing dispersal of the schools. The mean catch rate in 65 hauls (Table 4) was 893 lbs/hr (405 kg/hr). Of these, the ten hauls over 1000 lbs/hr averaged 3,481 lbs/hr (1,579 kg/hr) while the mean catch rate in the remaining 55 hauls was only 322 lbs/hr (146 kg/hr).

The catch of dogfish was almost four times that of Pacific cod and increased from 8% of the catch in February to 78% in March.

Surface and bottom temperatures (bathythermograph) averaged 6.9 and 7.5°C (23-76 fm) in February and 8.3 and 8.2°C (24-79 fm) in March (Table 5). BT stations are shown in Fig. 5.

PERSONNEL

PACIFIC EAGLE cruises 79-1 (Feb. 14-27) and 79-2 (Mar. 3-15).

W. R. Harling (i/c)	Pacific Biological Station	Feb. 14-27	Mar. 3-15
R. P. Foucher	Pacific Biological Station	Feb. 14-27	
K. R. James	Pacific Biological Station	Feb. 14-27	Mar. 3-8
W. Shaw	Pacific Biological Station	Feb. 14-27	Mar. 9-15
R. M. Wallis	Pacific Biological Station	Feb. 14-27	Mar. 3-15

ACKNOWLEDGEMENTS

The excellent cooperation of Capt. Leo Barros and the crew of the PACIFIC EAGLE was greatly appreciated.

REFERENCES

Foucher, R. P., W. R. Harling, R. M. Wallis, W. Shaw, and K. R. James. 1979. Pacific cod tagging, Georgia Strait, January 15-19, 1979. Fish. Mar. Serv. Data Rep. 150: 34 p.

Leaman, B. M., D. A. Nagtegaal, and J. E. Smith. 1979. A pilot tagging study of Pacific cod in the Strait of Georgia, January 17-February 2, 1978. Fish. Mar. Serv. MS Rep. 1516: 57 p.

Table 1. Summary of Pacific cod tagging data. PACIFIC EAGLE cruises 79-1 (hauls 79-1-1 to 79-1-43) and 79-2 (hauls 79-2-1 to 79-2-26), Feb. 14-27 and March 3-15, 1979.

Date	Haul no.	Tag number[a] C-	No. released	No. broken tags	Fish dead in recovery tank	Fish dead as % of no. tagged[b]	Release area
Feb.							
19	79-1-07	0000-0028	25	0	4	14	Firing Range
20	-13	0029-0067	33	2	4	11	Cabbage Patch
20	-14	0068-0079	11	0	1	8	Cabbage Patch
20	-15	0080-0094	13	0	2	13	Cabbage Patch
20	-16	0095-0108	12	0	2	14	Cabbage Patch
20	-18	0109-0123	7	0	8	53	Firing Range
20	-19	0124-0127	4	0	0	0	Firing Range
20	-20	0128-0144	15	1	1	6	Firing Range
21	-21	0145-0171	19	1	7	27	Southwest Corner
21	-22	0172-0301	85	9	36	30	Southwest Corner
21	-23	0302-0424	98	8	17	15	Southwest Corner
21	-24	0425-0471	30	0	17	36	Southwest Corner
21	-25	0472-0479	1	0	7	88	Southwest Corner
21	-26	0480-0638	116	14	29	20	Southwest Corner
21	-27	0639-0669	16	0	15	48	Big Bank
22	-29	0670-0678	4	1	4	50	Southwest Corner
22	-30	0679-0885	133	9	65	33	Southwest Corner
22	-32	0886-0894	9	0	0	0	Southwest Corner
22	-33	0895-0962	60	0	8	12	Southwest Corner
22	-34	0963-0970	7	1	0	0	Southwest Corner
23	-38	0971-0974	0	0	4	100	none released
26	-40	0975-0979	4	1	0	0	Southwest Corner
26	-42	0980-0991	7	1	4	0	Clo-oose
26	-43	0992-1039	27	5	16	37	Clo-oose
Total (cruise 79-1)			736	53	251		

Table 1 (cont'd)

Date	Haul no.	Tag number[a] C-	No. released	No. broken tags	Fish dead in recovery tank	Fish dead as % of no. tagged[b]	Release area
Mar.							
8	79-2-04	1040-1246	105	6	96	48	Steepedge
8	-05	1247-1297	34	0	17	33	Steepedge
8	-06	1298-1309	11	1	0	0	Steepedge
9	-10	1310-1317	8	0	0	0	Firing Range
9	-11	1318-1401	77	0	7	8	Firing Range
10	-13	1402-1411	8	1	1	11	Clo-oose
10	-14	1412-1454	42	0	1	2	Clo-oose
10	-15	1455-1525	65	4	2	3	Clo-oose
11	-18	1526-1608	75	0	8	10	Firing Range
12	-19	1609-1624	15	0	1	6	Steepedge
12	-20	1625	1	0	0	0	Steepedge
12	-21	1626-1649	17	0	7	29	Big Bank
12	-24	1650-1698	25	7	17	40	Firing Range
13	-25	1699-1792	78	2	14	15	Firing Range
Total (cruise 79-2)			561	21	171		
Grand total (79-1 & 79-2)			1297	74	422		

[a]Includes broken tags and tags removed from dead fish.
[b]No. tagged includes no. released and no. dead after tagging.

Table 2. Comparison of mortality (in recovery tank) rates of floaters[a] and sinkers[b].

Haul	Floaters			Sinkers		
	No. tagged	No. dead	% dead	No. tagged	No. dead	% dead
79-1-26	52	20	38	93	9	10
-30	119	54	45	79	11	14
-32	0	-	-	9	0	0
-33	56	7	13	12	1	8
79-2-04	116	78	67	85	18	21
-05	11	9	82	40	8	20
-06	0	-	-	11	0	0
-10	0	-	-	8	0	0
-11	14	4	29	70	3	4
-13	0	-	-	9	1	11
-14	10	1	10	33	0	0
-15	9	2	22	58	0	0
-18	8	2	25	75	6	8
-19	0	-	-	16	1	6
-20	0	-	-	1	0	0
-21	13	5	38	11	2	18
-24	18	13	72	24	4	17
-25	31	11	35	61	3	5
Total	457	206		695	66	
Mean			40			8
S.D.			23			7
Overall mortality rate %			45			9

[a] 'Floaters' - fish floating on surface in anaesthetic tank.
[b] 'Sinkers' - fish on bottom of tank - have corrected buoyancy after being brought to surface.

Table 3. Summary of sampling completed on PACIFIC EAGLE cruises 79-1 (Feb. 14-27) and 79-2 (Mar. 3-15), west coast Vancouver Island, 1979.

Species	Length	Sex		Cysts		Maturity	Otoliths	Scales, dorsal & pectoral fin rays
		Male	Female	Present	Absent			
Pacific cod	3994	1046	1197	688	3239	2150	-	316
Walleye pollock	492	282	52	-	-	-	-	-
Sebastes brevispinis	3	2	1	-	-	-	3	-
S. entomelas	1	1	0	-	-	-	1	-
S. paucispinis	6	2	4	-	-	-	6	-
S. pinniger	60	28	32	-	-	-	60	-
S. proriger	140	82	58	-	-	-	140	

Table 4. Pacific cod catch rates by depth interval, by area, PACIFIC EAGLE cruises 79-1 and 79-2, Feb. 14-27 and Mar. 3-15, 1979.

Area	Depth interval[a]	No. hauls	Average catch rate (kg/hr)
Firing Range	30	12	1020
	40	6	190
	50	2	35
Cabbage Patch	20	1	27
(includes Inside Edge)	30	6	174
	40	4	516
	50	2	408
Southwest Corner	30	2	33
(includes Steep Edge)	40	16	267
	50	7	473
Big Bank	40	1	0
Finger Bank	50	1	0
Clo-oose	20	5	69
Overall average catch rate		65	405

[a]Depth interval = beginning depth of 10-fm interval where longest duration of hauling occurred (30 = 30-39 fm etc.)

Table 5. Surface and bottom temperatures (°C) recorded in Area 3C, by station, PACIFIC EAGLE cruises 79-1 and 79-2, Feb. 14-27 and Mar. 3-15, 1979.

Station no.	Date	Time (PST)	North latitude	West longitude	Surface temp	Bottom temp	Sounding (fm)	BT depth (m)	Area
79-1 February									
1	19	1630	48° 58.1'	125° 46.0'	7.3	7.2	23	42	Firing Range
2	19	1730	48° 57.0'	125° 42.6'	6.5	7.3	50	90	Firing Range
3	20	1600	48° 54.1'	125° 37.4'	6.5	7.2	30	55	Firing Range
4	20	1800	48° 54.3'	125° 34.7'	6.5	7.4	50	21	Firing Range
5	21	1715	48° 40.1'	125° 45.8'	7.5	7.8	36	65	Big Bank
6	21	1730	48° 41.2'	125° 45.3'	7.6	7.8	73	130	Big Bank
7	21	1805	48° 44.5'	125° 43.6'	7.3	7.6	76	135	Big Bank
8	21	1910	48° 51.6'	125° 37.1'	6.1	7.4	27	55	Firing Range
			February mean		6.91	7.46			
			S.D.		0.57	0.24			
79-2 March									
1	9	1715	48° 53.0'	125° 40.1'	8.0	8.0	24	47	Firing Range
2	9	1745	48° 54.5'	125° 38.0'	8.5	8.0	49	92	Firing Range
3	10	1500	48° 33.2'	125° 47.7'	7.9	8.2	59	108	Clo-oose
4	12	1230	48° 35.0'	125° 35.8'	8.5	8.4	53	90	Big Bank
5	12	1515	48° 29.8'	125° 24.8'	8.9	8.3	77	135	Big Bank
6	12	1620	48° 36.2'	125° 26.0'	8.0	8.2	77	135	Big Bank
7	12	1700	48° 42.0'	125° 28.2'	8.5	8.3	79	140	Big Bank
8	12	1750	48° 47.2'	125° 32.4'	8.2	8.5	66	100	Cabbage Patch
			March mean		8.31	8.24			
			S.D.		0.34	0.18			

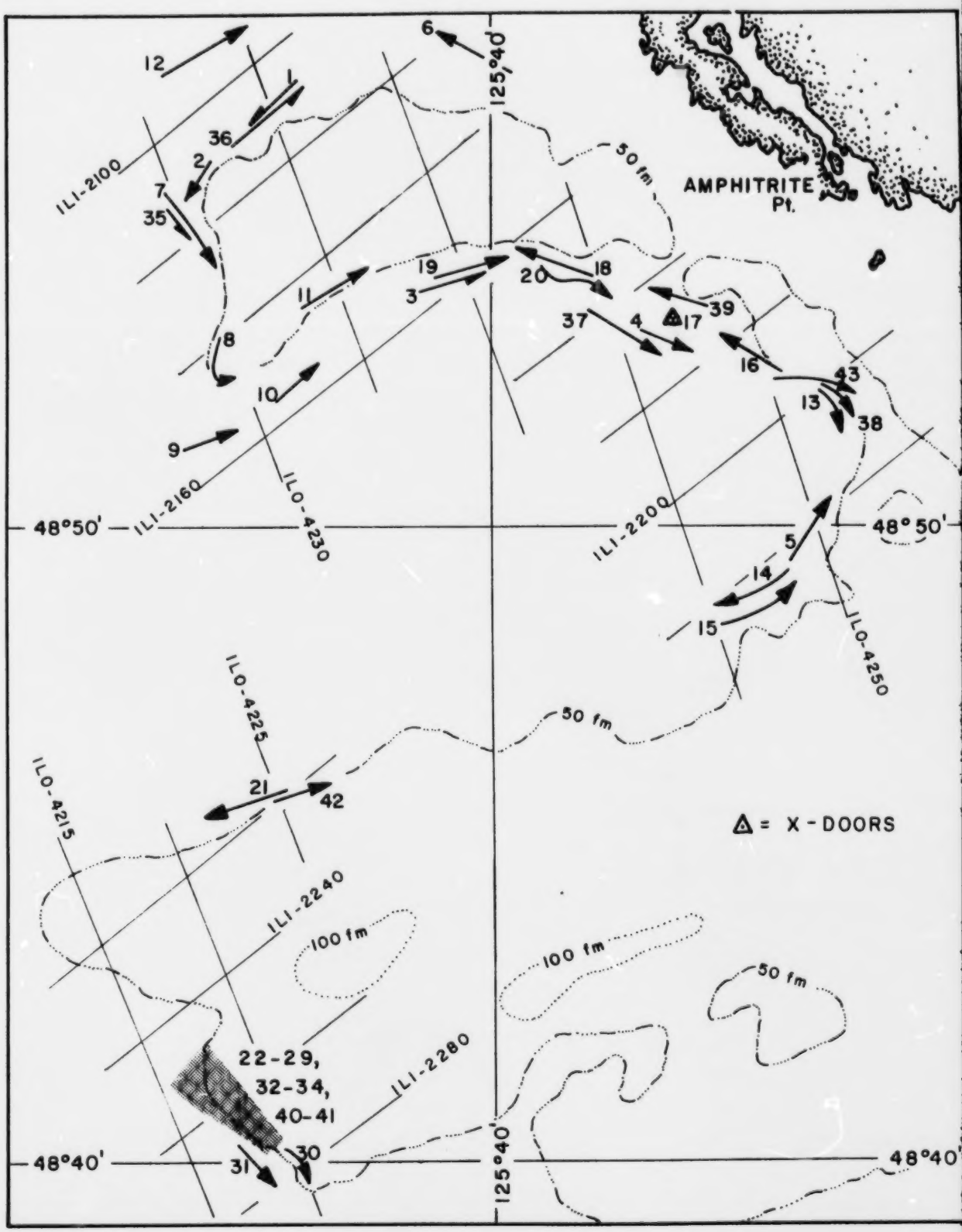

Fig. 1. Location of hauls 79-1-1 to 79-1-43 off southwest Vancouver Island. PACIFIC EAGLE cruise 79-1. Feb. 14-27. 1979.

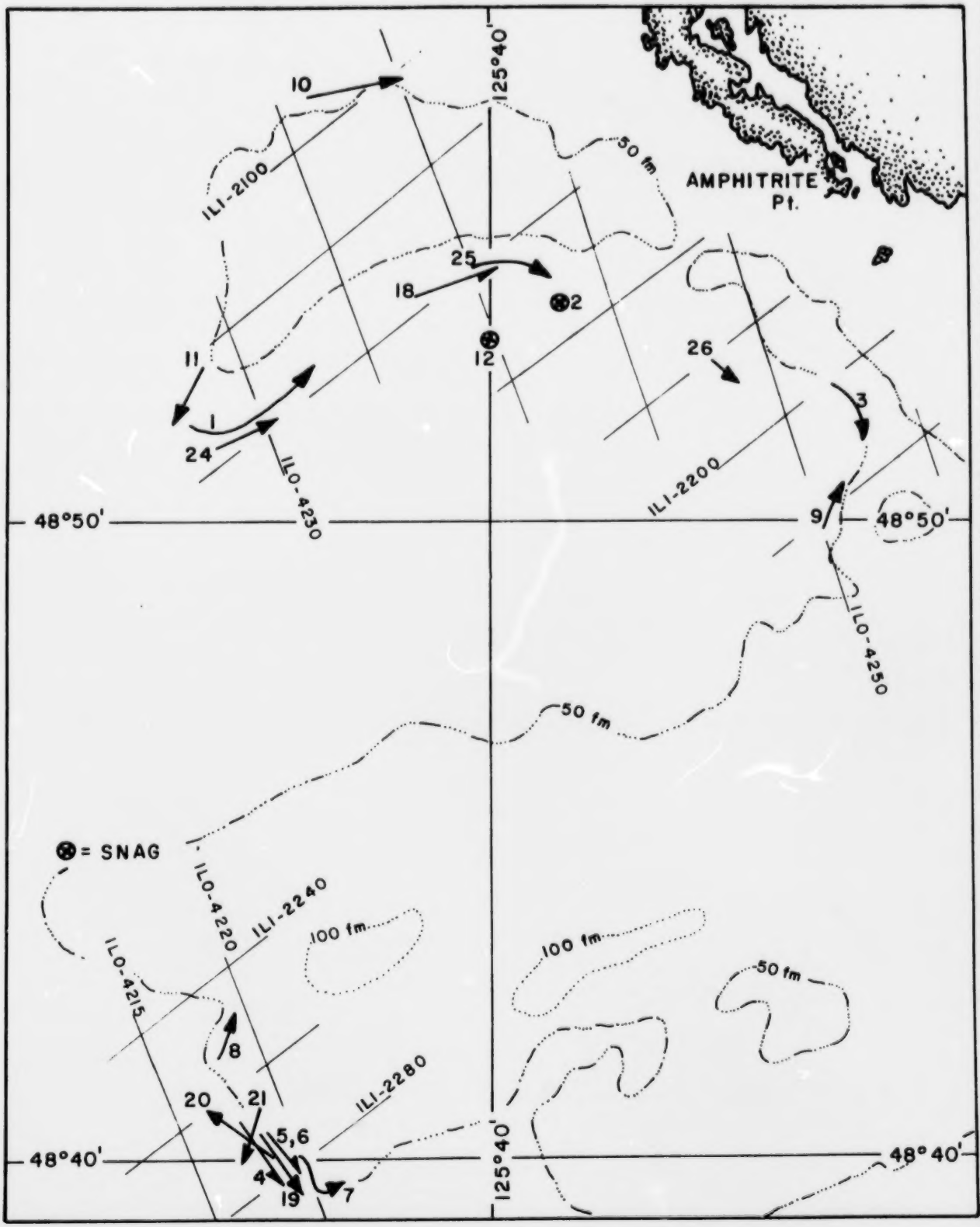

Fig. 2. Location of hauls 79-2-1 to 79-2-12, 79-2-18 to 79-2-21 and 79-2-24 to 79-2-26, off southwest Vancouver Island. PACIFIC EAGLE cruise 79-2. Mar. 3-15. 1979.

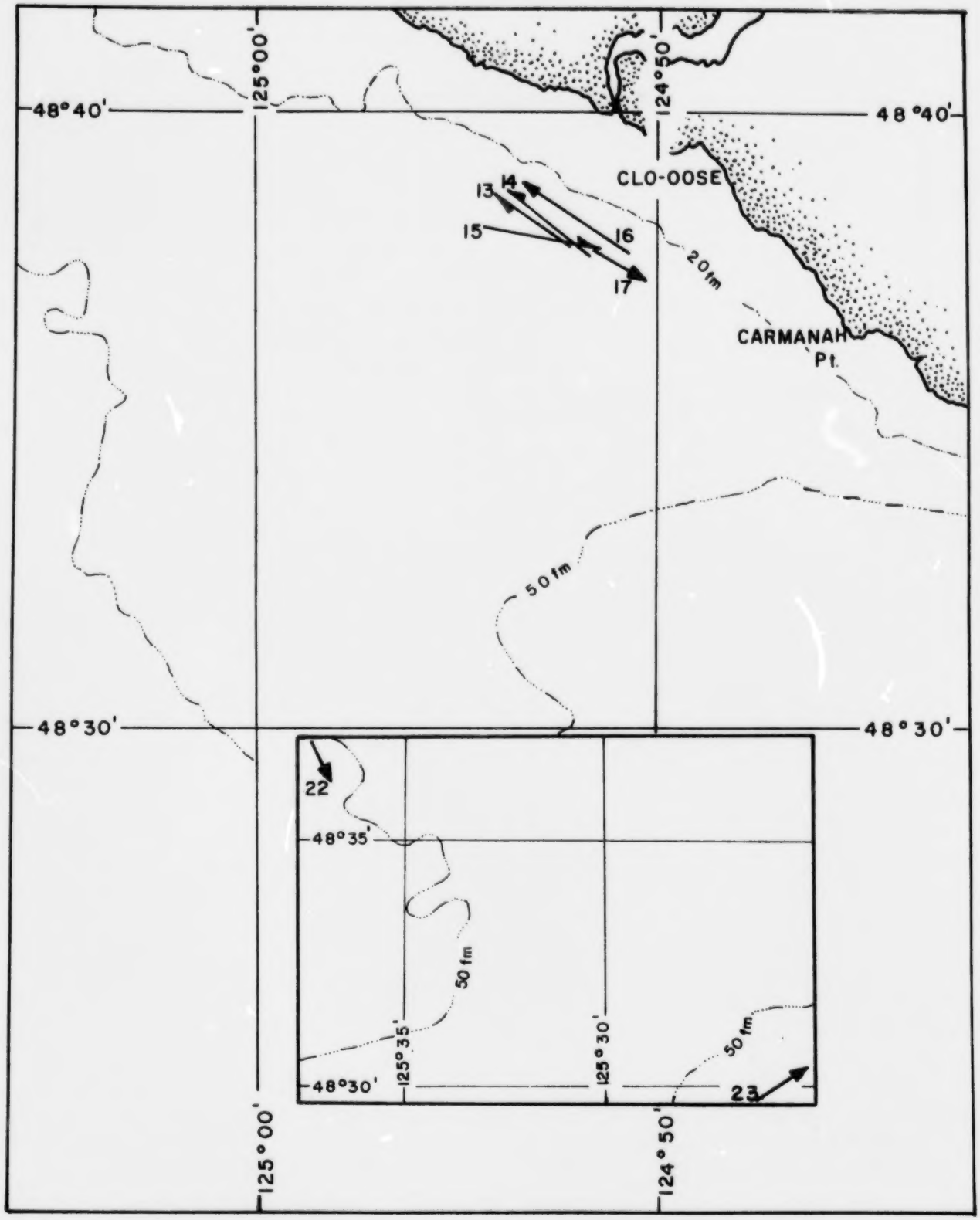

Fig. 3. Location of hauls 79-2-13 to 79-2-17 and 79-2-22 to 79-2-23, off southwest Vancouver Island, PACIFIC EAGLE cruise 79-2, Mar. 3-15, 1979.

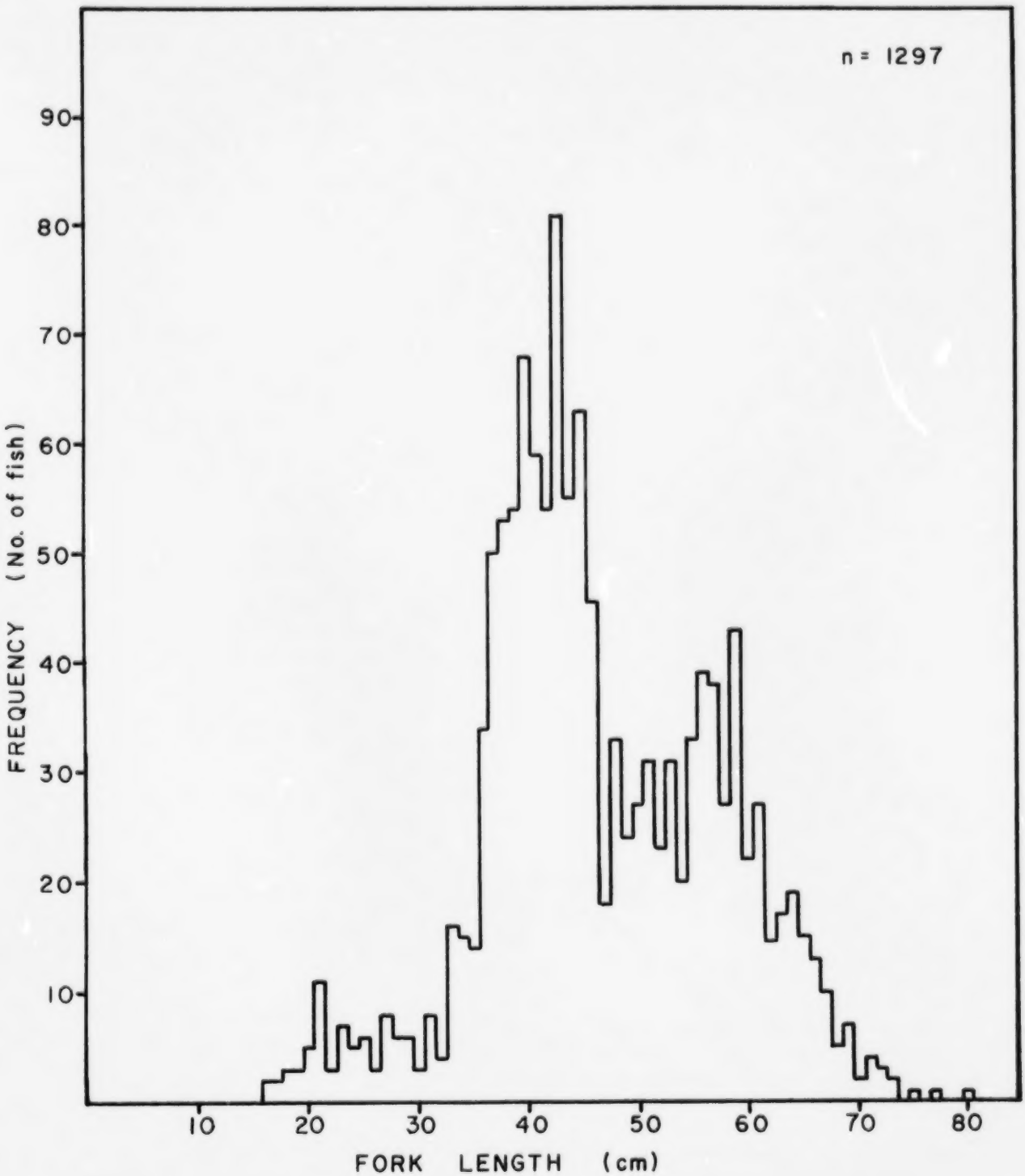

Fig. 4. Length-frequency of tagged Pacific cod released off southwest Vancouver Island, PACIFIC EAGLE cruises 79-1 and 79-2, Feb. 14-27 and Mar. 3-15, 1979.

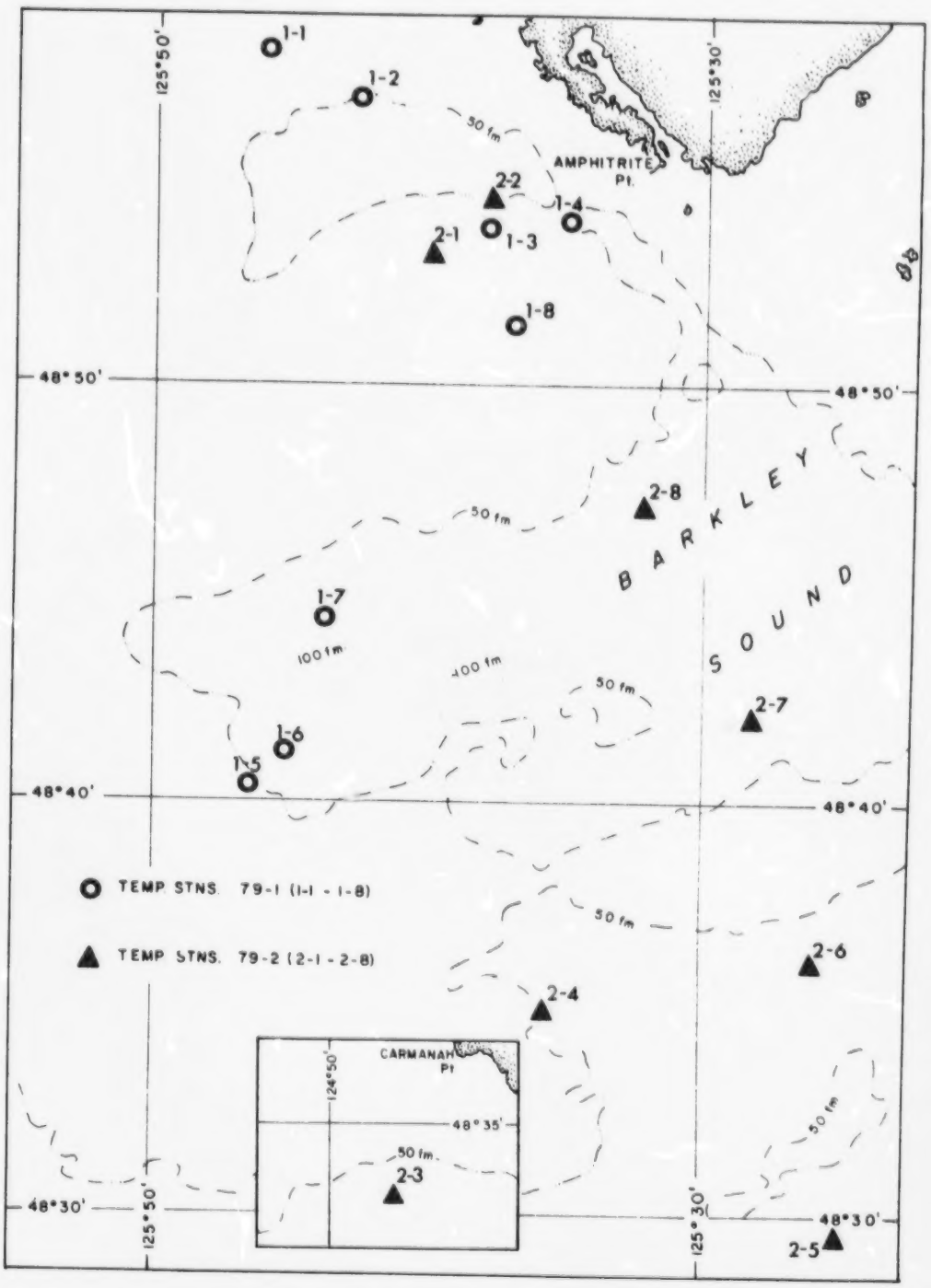

Fig. 5. Location of bathythermograph stations 79-1-1 to 79-1-8 and 79-2-1 to 79-2-8 off southwest Vancouver Island, PACIFIC EAGLE cruises 79-1 and 79-2, Feb. 14-27 and Mar. 3-15, 1979.

APPENDIX TABLES

APPENDIX TABLE 1. FISHING LOG FOR M/V PACIFIC EAGLE GROUNDFISH CRUISE 79-1, FEBRUARY 14-27, 1979

HAUL NO.		1	2	3	4	5
DATE		FEB 18	FEB 18	FEB 18	FEB 18	FEB 18
AREA[a]		FIRA	FIRA	FIRA	CAB	CAB
START TIME	(PST)	0819	0928	1120	1250	1430
DURATION	(MIN)	15	26	20	20	20
START N. LAT.	(DEG)	048	048	048	048	048
	(MIN)	57.8	56.1	54.0	53.4	49.6
W. LONG.	(DEG)	125	125	125	125	125
	(MIN)	45.3	46.8	41.8	36.3	32.8
DIRECTION (DEG.TRUE)		158	213	078	067	053
FINISH N. LAT.	(DEG)	048	048	048	048	048
	(MIN)	57.0	55.5	54.3	53.0	50.6
W.LONG.	(DEG)	125	125	125	125	125
	(MIN)	45.8	47.4	40.2	35.0	31.6
HAUL DISTANCE (N.M.)		0.9	1.0	1.0	1.0	1.0
DEPTH	(FATHOMS)	32- 41	41- 49	38- 45	40- 37	39- 32
	(METERS)	58- 74	74- 89	69- 82	73- 67	71- 58
DEPTH INTERVAL[b]	(FM)	30	40	40	30	30
TYPE OF GEAR[c]		9	9	9	9	9
TOTAL CATCH	(KG)	33	25e	22	27	123
REMARKS		USABLE	USABLE	USABLE	USABLE	USABLE

[a]Area : CAB = Cabbage Patch. CLO = Clo-oose. FIRA = Firing Range SWC = Southwest Corner.
[b]Depth interval = 10-fm interval in which all or most of trawling took place. 10 = 10-19; 20 = 20-20; etc.
[c]Type of gear: 9 = high-lift. on-bottom Engel trawl.
[d]* = estimated weight.
[e]T = trace = less than 1 kg.
[f]Other (any group): All species whose catch was no more than trace in any haul. See Appendix Table 8 for list of species and occurrence by haul.
[g]See Appendix Table 9 for total catch by species and occurrence by haul.

APPENDIX TABLE 1 CONTINUED

HAUL NO.	1	2	3	4	5
DATE	FEB 18	FEB 18	FEB 18	FEB 18	FEB 18
AREA	FIRA	FIRA	FIRA	CAB	CAB
TOTAL CATCH (KG)	33	256	22	27	123
ARROWTOOTH FLOUNDER	..	..	..	..	..
BUTTER SOLE	..	..	..	..	..
CURLFIN SOLE	3*[d]	..	..	..	..
DOVER SOLE	..	1*	..	..	..
ENGLISH SOLE	T*	2*	T*	..	..
FLATHEAD SOLE	..	..	..	..	..
PACIFIC HALIBUT	..	..	..	..	..
PACIFIC SANDDAB	..	T*	..	..	..
REX SOLE	..	..	..	..	7*
ROCK SOLE	9*	14*	11*	7*	..
SAND SOLE	..	2*	..	..	..
OTHER[f] FLATFISH	..	..	..	..	..
S. BREVISPINIS	..	..	..	..	..
S. ELONGATUS	..	..	..	..	..
S. FLAVIDUS	..	..	..	1*	2*
S. JORDANI	..	..	..	..	..
S. PAUCISPINIS	..	..	..	..	..
S. PINNIGER	1*	T*	..	..	..
S. PRORIGER	..	..	..	..	..
OTHER ROCKFISH	..	..	..	..	..
CHINOOK SALMON	..	..	..	..	..
LINGCOD	..	3*	..	..	..
PACIFIC COD	9*	70	9*	5*	90
PACIFIC HAKE	..	..	..	..	..
PACIFIC HERRING	..	..	..	..	..
PACIFIC TOMCOD	2*	5*	1*	2*	T*
PLAINFIN MIDSHIPMAN	..	9*	T*	..	..
SABLEFISH	..	..	..	..	..
SHINER PERCH	T*	..	..	..	..
WALLEYE POLLOCK	T*	9*	T*	..	..
OTHER ROUNDFISH	..	..	..	..	..
RATFISH	..	45*	T*	1*	1*
SKATES	..	91*	..	..	..
SPINY DOGFISH	9*	5*	..	..	5*
OTHER SELACHII	..	..	..	..	..
INVERTEBRATES[g]	T	T	1	11	18

APPENDIX TABLE 1 CONTINUED

HAUL NO.		6	7	8	9	10
DATE		FEB 19	FEB 19	FEB 19	FEB 19	FEB 19
AREA		FIRA	FIRA	FIRA	FIRA	FIRA
START TIME	(PST)	0740	0913	1040	1206	1250
DURATION	(MIN)	20	20	20	15	15
START N. LAT.	(DEG)	048	048	048	048	048
	(MIN)	57.6	55.5	53.2	51.6	52.2
W. LONG.	(DEG)	125	125	125	125	125
	(MIN)	39.8	48.1	46.8	47.4	45.2
DIRECTION (DEG.TRUE)		290	163	218	094	073
FINISH N. LAT.	(DEG)	048	048	048	048	048
	(MIN)	58.1	54.3	52.7	51.8	52.8
W.LONG.	(DEG)	125	125	125	125	125
	(MIN)	41.2	46.6	46.2	46.2	44.3
HAUL DISTANCE (N.M.)		1.0	1.6	1.2	1.0	1.0
DEPTH	(FATHOMS)	37- 42	34- 40	54- 47	35- 36	36- 37
	(METERS)	67- 76	62- 73	98- 85	64- 65	65- 67
DEPTH INTERVAL	(FM)	40	30	50	30	30
TYPE OF GEAR		9	9	9	9	9
TOTAL CATCH	(KG)	297	509	1133	92	23
REMARKS		USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	6	7	8	9	10
DATE	FEB 19	FEB 19	FEB 19	FEB 19	FEB 19
AREA	FIRA	FIRA	FIRA	FIRA	FIRA
TOTAL CATCH (KG)	297	509	1133	92	23
ARROWTOOTH FLOUNDER	T*	..	..	..	..
BUTTER SOLE	14*	..	..	..	..
CURLFIN SOLE	..	..	..	..	..
DOVER SOLE	..	..	9*	..	..
ENGLISH SOLE	14*	9*	68*	9*	1*
FLATHEAD SOLE	..	..	..	..	..
PACIFIC HALIBUT	..	..	..	..	..
PACIFIC SANDDAB	14*	T*	T*	..	..
REX SOLE	T*	T*	45*	T*	..
ROCK SOLE	14*	18*	9*	5*	..
SAND SOLE	..	T*	..	..	..
OTHER FLATFISH	..	..	..	..	..
S. BREVISPINIS	..	..	..	..	..
S. ELONGATUS	..	..	..	..	..
S. FLAVIDUS	..	..	..	..	..
S. JORDANI	..	..	..	..	..
S. PAUCISPINIS	..	..	..	..	..
S. PINNIGER	T*	..	1*	..	..
S. PRORIGER	..	..	T*	T*	..
OTHER ROCKFISH	T	..	..	..	..
CHINOOK SALMON	..	..	..	..	..
LINGCOD	7*	..	2*	..	..
PACIFIC COD	59	458	14*	68*	9*
PACIFIC HAKE	..	..	..	..	..
PACIFIC HERRING	18*	T*	2*	T*	..
PACIFIC TOMCOD	32*	7*	18*	T*	1*
PLAINFIN MIDSHIPMAN	9*	T*	9*	1*	T*
SABLEFISH	..	..	T*	..	..
SHINER PERCH	T*	T*	T*	T*	..
WALLEYE POLLOCK	23*	5*	2*	T*	T*
OTHER ROUNDFISH	T	T	T	T	..
RATFISH	2*	..	907*	7*	3*
SKATES	91*	9*	45*	T*	7*
SPINY DOGFISH	..	3*	..	2*	..
OTHER SELACHII	..	..	..	..	..
INVERTEBRATES	T	T	2	T	2

APPENDIX TABLE 1 CONTINUED

HAUL NO.		11	12	13	14	15
DATE		FEB 19	FEB 19	FEB 20	FEB 20	FEB 20
AREA		FIRA	FIRA	CAB	CAB	CAB
START TIME	(PST)	1330	1600	0730	0925	1040
DURATION	(MIN)	20	20	20	20	20
START N. LAT.	(DEG)	048	048	048	048	048
	(MIN)	53.8	57.4	52.4	49.4	48.6
W. LONG.	(DEG)	125	125	125	125	125
	(MIN)	44.5	48.0	32.5	32.8	34.6
DIRECTION (DEG.TRUE)		060	069	153	273	078
FINISH N. LAT.	(DEG)	048	048	048	048	048
	(MIN)	54.4	58.1	51.9	48.9	49.5
W.LONG.	(DEG)	125	125	125	125	125
	(MIN)	43.2	46.1	31.2	34.8	32.5
HAUL DISTANCE (N.M.)		1.2	1.6	1.2	1.6	1.7
DEPTH	(FATHOMS)	51- 54	25- 25	40- 45	38- 31	36- 40
	(METERS)	93- 98	45- 45	73- 82	69- 56	65- 73
DEPTH INTERVAL	(FM)	50	20	40	30	30
TYPE OF GEAR		9	9	9	9	9
TOTAL CATCH	(KG)	485	..	991	149	189
REMARKS		USABLE	UNUSABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	11	12	13	14	15
DATE	FEB 19	FEB 19	FEB 20	FEB 20	FEB 20
AREA	FIRA	FIRA	CAB	CAB	CAB
TOTAL CATCH (KG)	485	0	991	149	189
ARROWTOOTH FLOUNDER	..	..	..	..	..
BUTTER SOLE	..	..	..	..	..
CURLFIN SOLE	..	..	..	..	T*
DOVER SOLE	23*	..	2*	T*	T*
ENGLISH SOLE	5*	..	23*	..	4*
FLATHEAD SOLE	..	..	..	..	..
PACIFIC HALIBUT	..	..	..	..	..
PACIFIC SANDDAB	..	..	..	..	T*
REX SOLE	227*	..	9*	..	T*
ROCK SOLE	..	..	113*	14*	45*
SAND SOLE	..	..	..	..	..
OTHER FLATFISH	..	..	..	..	..
S. BREVISPINIS	..	..	..	..	..
S. ELONGATUS	..	..	..	..	..
S. FLAVIDUS	..	..	..	..	..
S. JORDANI	..	..	..	..	..
S. PAUCISPINIS	..	..	..	..	..
S. PINNIGER	T*	..	23*	..	..
S. PRORIGER	..	..	..	..	T
OTHER ROCKFISH	..	..	..	..	..
CHINOOK SALMON	..	..	..	..	..
LINGCOD	1*	..	2*	..	4*
PACIFIC COD	9*	..	544*	91*	45*
PACIFIC HAKE	1*	..	..	..	..
PACIFIC HERRING	5*	..	..	T*	T*
PACIFIC TOMCOD	9*	..	23*	5*	9*
PLAINFIN MIDSHIPMAN	5*	..	T*	..	..
SABLEFISH	..	..	..	..	..
SHINER PERCH	T*	..	..	T*	T*
WALLEYE POLLOCK	1*	..	T*	1*	T*
OTHER ROUNDFISH	T	..	..	..	T
RATFISH	181*	..	227*	2*	23*
SKATES	..	..	23*	..	..
SPINY DOGFISH	18*	..	..	32*	45*
OTHER SELACHII	..	..	..	..	..
INVERTEBRATES	T	..	2	4	14

APPENDIX TABLE 1 CONTINUED

HAUL NO.		16	17	18	19	20
DATE		FEB 20	FEB 20	FEB 20	FEB 20	FEB 20
AREA		CAB	CAB	FIRA	FIRA	FIRA
START TIME	(PST)	1220	1315	1430	1537	1637
DURATION	(MIN)	20	7	20	20	20
START N. LAT.	(DEG)	048	048	048	048	048
	(MIN)	52.6	53.7	54.3	54.2	54.4
W. LONG.	(DEG)	125	125	125	125	125
	(MIN)	32.5	35.8	37.4	41.4	38.8
DIRECTION (DEG.TRUE)		328	000	313	075	109
FINISH N. LAT.	(DEG)	048	000	048	048	048
	(MIN)	53.4	00.0	54.7	54.3	53.9
W.LONG.	(DEG)	125	100	125	125	125
	(MIN)	34.2	00.0	39.2	39.6	37.0
HAUL DISTANCE (N.M.)		1.3	0.0	1.3	1.2	1.5
DEPTH	(FATHOMS)	53- 48	27- 27	40- 47	38- 36	38- 35
	(METERS)	96- 87	49- 49	73- 85	69- 65	69- 64
DEPTH INTERVAL	(FM)	50	20	40	30	30
TYPE OF GEAR		9	9	9	9	9
TOTAL CATCH	(KG)	378	..	1328	129	267
REMARKS		USABLE	X-DOORS UNUSABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	16	17	18	19	20
DATE	FEB 20	FEB 20	FEB 20	FEB 20	FEB 20
AREA	CAB	CAB	FIRA	FIRA	FIRA
TOTAL CATCH (KG)	378	0	1328	129	267
ARROWTOOTH FLOUNDER	..	..	..	..	..
BUTTER SOLE	..	..	..	..	..
CURLFIN SOLE	..	..	..	..	..
DOVER SOLE	14*	..	..	..	..
ENGLISH SOLE	91*	..	45*	5*	9*
FLATHEAD SOLE	..	..	..	..	..
PACIFIC HALIBUT	..	..	..	..	..
PACIFIC SANDDAB	..	..	1*	..	1*
REX SOLE	45*	..	23*	T*	2*
ROCK SOLE	34*	..	34*	11*	23*
SAND SOLE	..	..	..	..	..
OTHER FLATFISH	..	..	..	..	..
S. BREVISPINIS	..	..	..	..	..
S. ELONGATUS	..	..	..	..	..
S. FLAVIDUS	..	..	..	..	..
S. JORDANI	..	..	..	..	..
S. PAUCISPINIS	..	..	..	..	..
S. PINNIGER	2*	..	..	..	..
S. PRORIGER	..	..	..	..	..
OTHER ROCKFISH	..	..	..	..	..
CHINOOK SALMON	..	..	..	..	..
LINGCOD	T*	..	T*	..	..
PACIFIC COD	136*	..	34*	11*	136*
PACIFIC HAKE	T*	..	..	..	..
PACIFIC HERRING	..	..	..	..	..
PACIFIC TOMCOD	9*	..	23*	9*	14*
PLAINFIN MIDSHIPMAN	9*	..	T*	T*	..
SABLEFISH	2*	..	T*	..	..
SHINER PERCH	..	..	1*	T*	T*
WALLEYE POLLOCK	9*	..	1*	..	..
OTHER ROUNDFISH	T	..	..	..	T
RATFISH	23*	..	1134*	91*	41*
SKATES	..	..	18*	..	..
SPINY DOGFISH	2*	..	5*	..	18*
OTHER SELACHII	..	..	..	..	..
INVERTEBRATES	2	..	9	2	23

APPENDIX TABLE 1 CONTINUED

HAUL NO.		21	22	23	24	25
DATE		FEB 21	FEB 21	FEB 21	FEB 21	FEB 21
AREA		SWC	SWC	SWC	SWC	SWC
START TIME	(PST)	0820	1030	1155	1320	1415
DURATION	(MIN)	20	25	10	10	15
START N. LAT.	(DEG)	048	048	048	048	048
	(MIN)	45.9	40.1	41.2	40.4	41.1
W. LONG.	(DEG)	125	125	125	125	125
	(MIN)	45.0	45.2	46.8	45.8	46.8
DIRECTION (DEG.TRUE)		255	273	136	310	136
FINISH N. LAT.	(DEG)	048	048	048	048	048
	(MIN)	45.4	41.0	40.7	40.9	40.6
W.LONG.	(DEG)	125	125	125	125	125
	(MIN)	46.8	46.9	46.0	46.3	46.3
HAUL DISTANCE (N.M.)		1.4	1.4	0.8	0.8	0.8
DEPTH	(FATHOMS)	49- 44	50- 47	47- 51	49- 45	57- 50
	(METERS)	89- 80	91- 85	85- 93	89- 82	104- 91
DEPTH INTERVAL	(FM)	40	40	40	40	50
TYPE OF GEAR		9	9	9	9	9
TOTAL CATCH	(KG)	81	528	149	118	99
REMARKS		USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	21	22	23	24	25
DATE	FEB 21	FEB 21	FEB 21	FEB 21	FEB 21
AREA	SWC	SWC	SWC	SWC	SWC
TOTAL CATCH (KG)	81	528	149	118	99
ARROWTOOTH FLOUNDER	..	..	..	..	..
BUTTER SOLE	..	..	..	..	..
CURLFIN SOLE	2*	..	..	..	T*
DOVER SOLE	..	..	T*	T*	T*
ENGLISH SOLE	5*	9*	7*	..	1*
FLATHEAD SOLE	..	..	..	2*	..
PACIFIC HALIBUT	..	..	..	..	..
PACIFIC SANDDAB	2*	..	..	..	..
REX SOLE	T*	..	..	..	T*
ROCK SOLE	9*	2*	T*	2*	1*
SAND SOLE	..	..	..	..	..
OTHER FLATFISH	..	..	..	..	..
S. BREVISPINIS	..	..	..	..	..
S. ELONGATUS	..	T*	..	..	T*
S. FLAVIDUS	..	..	..	..	..
S. JORDANI	..	..	..	..	..
S. PAUCISPINIS	T*	..	..	..	..
S. PINNIGER	..	..	..	..	..
S. PRORIGER	T*	T*	..	T*	T*
OTHER ROCKFISH	..	..	..	..	..
CHINOOK SALMON	..	14*	..	..	..
LINGCOD	..	7*	14*	7*	2*
PACIFIC COD	23*	454*	91*	27*	9*
PACIFIC HAKE	..	..	..	..	..
PACIFIC HERRING	2*	..	..	..	T*
PACIFIC TOMCOD	2*	5*	1*	..	3*
PLAINFIN MIDSHIPMAN	T*	..	..	..	..
SABLEFISH	1*	..	..	..	2*
SHINER PERCH	T*	..	..	..	..
WALLEYE POLLOCK	..	..	..	..	..
OTHER ROUNDFISH	..	..	..	..	..
RATFISH	5*	5*	9*	..	..
SKATES	..	7*	5*	..	5*
SPINY DOGFISH	27*	23*	18*	68*	68*
OTHER SELACHII	..	..	..	..	..
INVERTEBRATES	3	2	4	12	8

APPENDIX TABLE 1 CONTINUED

HAUL NO.		26	27	28	29	30
DATE		FEB 21	FEB 21	FEB 22	FEB 22	FEB 22
AREA		SWC	SWC	SWC	SWC	SWC
START TIME	(PST)	1455	1630	0850	0945	1030
DURATION	(MIN)	20	15	20	20	20
START N. LAT.	(DEG)	048	048	048	048	048
	(MIN)	40.4	40.9	40.2	41.3	40.3
W. LONG.	(DEG)	125	125	125	125	125
	(MIN)	46.2	46.6	45.7	46.5	45.5
DIRECTION (DEG.TRUE)		319	136	313	143	135
FINISH N. LAT.	(DEG)	048	048	048	048	048
	(MIN)	41.2	40.5	40.9	40.8	39.5
W.LONG.	(DEG)	125	125	125	125	125
	(MIN)	47.4	46.0	46.8	45.4	44.5
HAUL DISTANCE (N.M.)		1.2	0.6	1.0	0.8	1.0
DEPTH	(FATHOMS)	38- 44	47- 39	46- 38	59- 57	57- 45
	(METERS)	69- 80	85- 71	84- 69	107-104	104- 82
DEPTH INTERVAL	(FM)	40	40	40	50	50
TYPE OF GEAR		9	9	9	9	9
TOTAL CATCH	(KG)	251	96	192	111	612
REMARKS		USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.		31	32	33	34	35
DATE		FEB 22	FEB 22	FEB 22	FEB 22	FEB 23
AREA		SWC	SWC	SWC	SWC	FIRA
START TIME	(PST)	1255	1415	1520	1615	1102
DURATION	(MIN)	18	13	20	15	15
START N. LAT.	(DEG)	048	048	048	048	048
	(MIN)	40.2	40.8	41.0	40.4	55.3
W. LONG.	(DEG)	125	125	125	125	125
	(MIN)	45.6	46.7	46.7	46.1	47.8
DIRECTION (DEG.TRUE)		135	313	143	313	137
FINISH N. LAT.	(DEG)	048	048	048	048	048
	(MIN)	39.6	41.6	40.5	41.6	55.0
W.LONG.	(DEG)	125	125	125	125	125
	(MIN)	45.0	47.0	46.2	47.2	47.3
HAUL DISTANCE (N.M.)		0.8	1.0	0.8	1.2	0.7
DEPTH	(FATHOMS)	45- 40	36- 43	40- 47	40- 47	34- 34
	(METERS)	82- 73	65- 78	73- 85	73- 85	62- 62
DEPTH INTERVAL	(FM)	40	40	40	40	30
TYPE OF GEAR		9	9	9	9	9
TOTAL CATCH	(KG)	466	103	104	94	15
REMARKS		USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	26	27	28	29	30
DATE	FEB 21	FEB 21	FEB 22	FEB 22	FEB 22
AREA	SWC	SWC	SWC	SWC	SWC
TOTAL CATCH (KG)	251	96	192	111	612
ARROWTOOTH FLOUNDER	..	..	..	..	..
BUTTER SOLE	..	..	..	..	..
CURLFIN SOLE	..	..	..	..	..
DOVER SOLE	..	T*	T*	1*	..
ENGLISH SOLE	..	..	1*	1*	T*
FLATHEAD SOLE	..	..	4*	..	1*
PACIFIC HALIBUT	..	..	..	..	..
PACIFIC SANDDAB	..	..	..	T*	..
REX SOLE	T*	..	T*	T*	..
ROCK SOLE	7*	..	T*	..	..
SAND SOLE	..	..	..	..	..
OTHER FLATFISH	..	..	..	..	..
S. BREVISPINIS	..	..	..	..	..
S. ELONGATUS	..	..	1*	1*	..
S. FLAVIDUS	..	..	..	..	..
S. JORDANI	..	..	..	..	2
S. PAUCISPINIS	..	..	..	..	..
S. PINNIGER	..	..	..	..	..
S. PRORIGER	T*	..	..	..	91*
OTHER ROCKFISH	..	..	..	..	..
CHINOOK SALMON	..	..	..	..	..
LINGCOD	9*	1*	23*	..	32*
PACIFIC COD	181*	18*	14*	7*	454*
PACIFIC HAKE	..	..	..	..	..
PACIFIC HERRING	..	..	..	T*	..
PACIFIC TOMCOD	..	T*	..	T*	T*
PLAINFIN MIDSHIPMAN	..	..	..	..	..
SABLEFISH	2*	1*	2*	1*	..
SHINER PERCH	..	..	..	..	..
WALLEYE POLLOCK	..	..	..	..	..
OTHER ROUNDFISH	..	..	..	..	..
RATFISH	..	..	..	..	..
SKATES	9*	4*	9*	..	5*
SPINY DOGFISH	27*	68*	136*	91*	18*
OTHER SELACHII	..	..	..	..	..
INVERTEBRATES	16	4	2	9	9

APPENDIX TABLE 1 CONTINUED

HAUL NO.	31	32	33	34	35
DATE	FEB 22	FEB 22	FEB 22	FEB 22	FEB 23
AREA	SWC	SWC	SWC	SWC	FIRA
TOTAL CATCH (KG)	466	103	104	94	15
ARROWTOOTH FLOUNDER	..	..	..	..	..
BUTTER SOLE	..	..	..	..	..
CURLFIN SOLE	..	..	..	..	..
DOVER SOLE	..	..	..	T*	..
ENGLISH SOLE	1*	..	T*	T*	..
FLATHEAD SOLE	..	..	..	..	..
PACIFIC HALIBUT	..	..	..	..	..
PACIFIC SANDDAB	..	..	..	..	..
REX SOLE	..	T*	..	..	..
ROCK SOLE	..	1*	T*	..	2*
SAND SOLE	..	..	..	..	..
OTHER FLATFISH	..	..	..	..	..
S. BREVISPINIS	1*	..	..	..	..
S. ELONGATUS	..	..	..	..	..
S. FLAVIDUS	..	..	..	..	..
S. JORDANI	..	..	..	..	..
S. PAUCISPINIS	..	..	..	..	..
S. PINNIGER	..	..	..	..	..
S. PRORIGER	408*	4*	..	..	..
OTHER ROCKFISH	T	..	..	..	..
CHINOOK SALMON	..	..	..	4*	..
LINGCOD	9*	2*	23*	2*	2*
PACIFIC COD	14*	45*	45*	36*	5*
PACIFIC HAKE	..	..	..	..	..
PACIFIC HERRING	..	..	T*	..	..
PACIFIC TOMCOD	1*	..	2*	T*	1*
PLAINFIN MIDSHIPMAN	..	..	..	..	..
SABLEFISH	T*	1*	..	1*	..
SHINER PERCH	..	..	..	..	T*
WALLEYE POLLUCK	..	..	..	..	5*
OTHER ROUNDFISH	..	..	..	..	..
RATFISH	..	..	..	..	..
SKATES	9*	..	..	4*	..
SPINY DOGFISH	23*	45*	27*	45*	..
OTHER SELACHII	..	..	..	..	..
INVERTEBRATES	T	5	7	2	T

APPENDIX TABLE 1 CONTINUED

HAUL NO.		36	37	38	39	40
DATE		FEB 23	FEB 23	FEB 23	FEB 23	FEB 26
AREA		FIRA	CAB	CAB	CAB	SWC
START TIME	(PST)	1150	1345	1500	1600	0945
DURATION	(MIN)	20	20	20	13	20
START N. LAT.	(DEG)	048	048	048	048	048
	(MIN)	55.7	53.7	52.4	53.7	40.8
W. LONG.	(DEG)	125	125	125	125	125
	(MIN)	47.5	37.6	32.0	34.7	46.6
DIRECTION (DEG.TRUE)		063	113	127	293	100
FINISH N. LAT.	(DEG)	048	048	048	048	048
	(MIN)	57.3	53.0	51.8	54.1	40.2
W.LONG.	(DEG)	125	125	125	125	125
	(MIN)	44.6	35.8	31.3	36.0	45.4
HAUL DISTANCE (N.M.)		1.6	1.4	1.1	1.2	0.9
DEPTH	(FATHOMS)	39- 40	26- 26	41- 45	49- 47	46- 54
	(METERS)	71- 73	47- 47	74- 82	89- 85	84- 98
DEPTH INTERVAL	(FM)	40	20	40	40	50
TYPE OF GEAR		9	9	9	9	9
TOTAL CATCH	(KG)	209	22	197	833	113
REMARKS		USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	36	37	38	39	40
DATE	FEB 23	FEB 23	FEB 23	FEB 23	FEB 26
AREA	FIRA	CAB	CAB	CAB	SWC
TOTAL CATCH (KG)	209	22	197	833	113
ARROWTOOTH FLOUNDER	..	..	..	..	..
BUTTER SOLE	T*	..	2*	..	..
CURLFIN SOLE	T*	..	..	..	..
DOVER SOLE	..	..	9*	2*	4*
ENGLISH SOLE	1*	T*	14*	18*	8*
FLATHEAD SOLE	..	..	..	..	2*
PACIFIC HALIBUT	..	..	..	..	..
PACIFIC SANDDAB	..	..	..	T	..
REX SOLE	..	..	5*	5*	..
ROCK SOLE	2*	T*	14*	14*	5*
SAND SOLE	..	..	..	..	..
OTHER FLATFISH	..	..	..	..	..
S. BREVISPINIS	..	..	..	..	..
S. ELONGATUS	..	..	..	..	2*
S. FLAVIDUS	..	..	..	..	..
S. JORDANI	..	..	..	..	..
S. PAUCISPINIS	..	..	..	..	..
S. PINNIGER	1*	..	..	T*	2*
S. PRORIGER	T*	..	..	..	14*
OTHER ROCKFISH	..	..	..	..	..
CHINOOK SALMON	1*	2*	..	..	..
LINGCOD	7*	5*	..	1*	1*
PACIFIC COD	136*	9*	45*	91*	14*
PACIFIC HAKE	..	..	..	..	..
PACIFIC HERRING	..	..	..	..	T*
PACIFIC TOMCOD	4*	..	5*	2*	1*
PLAINFIN MIDSHIPMAN	..	..	T*	2*	..
SABLEFISH	..	..	..	1*	..
SHINER PERCH	T*	..	1*	T*	..
WALLEYE POLLOCK	45*	..	9*	11*	..
OTHER ROUNDFISH	..	..	T	T	..
RATFISH	1*	..	91*	680*	2*
SKATES	2*	..	..	..	..
SPINY DOGFISH	5*	2*	2*	5*	54*
OTHER SELACHII	..	..	..	..	..
INVERTEBRATES	4	4	T	1	4

APPENDIX TABLE 1 CONTINUED

HAUL NO.		41	42	43
DATE		FEB 26	FEB 26	FEB 26
AREA		SWC	SWC	CAB
START TIME	(PST)	1048	1225	1550
DURATION	(MIN)	22	20	20
START N. LAT.	(DEG)	048	048	048
	(MIN)	40.9	45.7	52.5
W. LONG.	(DEG)	125	125	125
	(MIN)	46.5	46.4	33.4
DIRECTION (DEG.TRUE)		120	093	116
FINISH N. LAT.	(DEG)	048	048	048
	(MIN)	40.2	45.8	52.2
W.LONG.	(DEG)	125	125	125
	(MIN)	45.6	45.2	31.2
HAUL DISTANCE (N.M.)		1.0	1.0	1.3
DEPTH	(FATHOMS)	51- 43	43- 49	48- 54
	(METERS)	93- 78	78- 89	87- 98
DEPTH INTERVAL	(FM)	40	40	50
TYPE OF GEAR		9	9	9
TOTAL CATCH	(KG)	95	70	2175
REMARKS		USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	41	42	43
DATE	FEB 26	FEB 26	FEB 26
AREA	SWC	SWC	CAB
TOTAL CATCH (KG)	94	70	2175
ARROWTOOTH FLOUNDER	..	..	2*
BUTTER SOLE	..	..	7*
CURLFIN SOLE	..	1*	..
DOVER SOLE	T*	..	18*
ENGLISH SOLE	2*	8*	18*
FLATHEAD SOLE	..	..	14*
PACIFIC HALIBUT	..	5*	..
PACIFIC SANDDAB	..	2*	..
REX SOLE	..	3*	23*
ROCK SOLE	2*	2*	91*
SAND SOLE	..	..	9*
OTHER FLATFISH	..	..	..
S. BREVISPINIS	..	..	..
S. ELONGATUS	1*	..	..
S. FLAVIDUS	..	..	..
S. JORDANI	..	..	..
S. PAUCISPINIS	..	..	1*
S. PINNIGER	..	..	5*
S. PRORIGER	..	..	..
OTHER ROCKFISH	..	..	..
CHINOOK SALMON	..	..	..
LINGCOD	1*	..	2*
PACIFIC COD	18*	18*	136*
PACIFIC HAKE	..	..	..
PACIFIC HERRING	T*	T*	1*
PACIFIC TOMCOD	1*	T*	9*
PLAINFIN MIDSHIPMAN	..	..	..
SABLEFISH	..	1*	..
SHINER PERCH	..	..	1*
WALLEYE POLLOCK	..	..	5*
OTHER ROUNDFISH	..	T	..
RATFISH	..	..	1814*
SKATES	..	..	..
SPINY DOGFISH	68*	23*	18*
OTHER SELACHII	..	..	..
INVERTEBRATES	1	7	1

APPENDIX TABLE 2. FISHING LOG FOR M/V PACIFIC EAGLE GROUNDFISH CRUISE 79-2, MARCH 3-15, 1979

HAUL NO.		1	2	3	4	5
DATE		MAR 7	MAR 7	MAR 7	MAR 8	MAR 8
AREA[a]		FIRA	FIRA	CAB	SWC	SWC
START TIME	(PST)	0922	1415	1510	0823	1145
DURATION	(MIN)	45	1	30	35	15
START N. LAT.	(DEG)	048	048	048	048	048
	(MIN)	51.8	53.7	52.4	40.6	40.5
W. LONG.	(DEG)	125	125	125	125	125
	(MIN)	47.6	38.5	32.0	46.3	45.8
DIRECTION	(DEG.TRUE)	071	000	151	123	123
FINISH N. LAT.	(DEG)	048	000	048	048	048
	(MIN)	52.7	00.0	51.3	39.6	40.0
W.LONG.	(DEG)	125	100	125	125	125
	(MIN)	44.6	00.0	31.1	44.7	45.4
HAUL DISTANCE	(N.M.)	2.4	0.1	1.3	1.5	1.0
DEPTH	(FATHOMS)	38- 37	24- 0	42- 47	50- 48	60- 47
	(METERS)	69- 67	43- 0	76- 85	91- 87	109- 85
DEPTH INTERVAL[b]	(FM)	30	20	40	50	50
TYPE OF GEAR[c]		9	9	9	9	9
TOTAL CATCH	(KG)	833	..	74	673	184
REMARKS		USABLE	SNAG UNUSABLE	UNUSABLE	USABLE	USABLE

[a]Area: BIGB = Big Bank, CAB = Cabbage Patch, CLO = Clo-oose, FB = Finger Bank, FIRA = Firing Range.
[b]Depth interval = 10-fm interval in which all or most of trawling took place. 10 = 10-19; 20 = 20-29; etc.
[c]Type of gear: 9 = high-lift, on-bottom Engel trawl.
[d]T = trace = less than 1 kg.
[e]* = estimated weight.
[f]Other (any group): All species whose catch was no more than trace in any haul. See Appendix Table 8 for list of species and occurrence by haul.
[g]See Appendix Table 9 for total catch by species and occurrence by haul.

APPENDIX TABLE 2 CONTINUED

HAUL NO.	1	2	3	4	5
DATE	MAR 7	MAR 7	MAR 7	MAR 8	MAR 8
AREA	FIRA	FIRA	CAB	SWC	SWC
TOTAL CATCH (KG)	833	0	74	673	184
ARROWTOOTH FLOUNDER	..	..	T*[c]	..	..
BUTTER SOLE	..	..	..	..	..
DOVER SOLE	..	..	T*	..	..
ENGLISH SOLE	9*	..	1*	1*	..
PACIFIC HALIBUT	..	..	20*	..	..
PACIFIC SANDDAB	T*	..	T*	..	..
PETRALE SOLE	..	..	..	..	..
REX SOLE	..	..	T*	T*	..
ROCK SOLE	5*	..	..	2*	1*
SAND SOLE	..	..	..	..	..
STARRY FLOUNDER	..	..	..	..	..
OTHER[f] FLATFISH	..	..	..	..	..
S. ELONGATUS	..	..	..	..	..
S. PRORIGER	..	..	..	T*	..
OTHER ROCKFISH	..	..	..	..	..
AMERICAN SHAD	..	..	..	..	..
CHINOOK SALMON	..	..	..	..	..
EULACHON	T*	..	..	..	..
LINGCOD	..	..	..	9*	2*
PACIFIC COD	363*	..	34*	590*	45*
PACIFIC HERRING	T*	..	..	..	..
PACIFIC TOMCOD	T*	..	1*	2*	..
PLAINFIN MIDSHIPMAN	..	..	..	..	..
POACHERS	..	..	..	..	..
SCULPINS	..	..	..	..	..
SHINER PERCH	..	..	..	..	..
WALLEYE POLLOCK	..	..	..	..	..
OTHER ROUNDFISH	..	..	..	..	..
RATFISH	454*	..	9*	..	..
SKATES	..	..	..	23*	..
SPINY DOGFISH	2*	..	9*	45*	136*
OTHER SELACHII	..	..	..	..	..
INVERTEBRATES[g]	T	..	T	1	..

APPENDIX TABLE 2 CONTINUED

HAUL NO.		6	7	8	9	10
DATE		MAR 8	MAR 8	MAR 8	MAR 8	MAR 9
AREA		SWC	SWC	SWC	CAB	FIKA
START TIME	(PST)	1240	1340	1450	1723	0845
DURATION	(MIN)	15	15	15	17	20
START N. LAT.	(DEG)	048	048	048	048	048
	(MIN)	40.5	40.1	41.6	50.1	57.0
W. LONG.	(DEG)	125	125	125	125	125
	(MIN)	45.8	45.2	46.9	32.2	44.6
DIRECTION (DEG.TRUE)		143	120	014	043	058
FINISH N. LAT.	(DEG)	048	048	048	048	048
	(MIN)	39.6	39.6	42.3	50.8	57.3
W.LONG.	(DEG)	125	125	125	125	125
	(MIN)	44.8	44.1	46.7	31.7	42.3
HAUL DISTANCE (N.M.)		1.1	1.1	0.8	0.8	1.4
DEPTH	(FATHOMS)	50- 43	52- 46	45- 45	35- 35	48- 49
	(METERS)	91- 78	95- 84	82- 82	64- 64	87- 89
DEPTH INTERVAL	(FM)	40	40	40	30	40
TYPE OF GEAR		9	9	9	9	9
TOTAL CATCH	(KG)	149	1327	72	136	1613
REMARKS		USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 2 CONTINUED

HAUL NO.	6	7	8	9	10
DATE	MAR 8	MAR 8	MAR 8	MAR 8	MAR 9
AREA	SWC	SWC	SWC	CAB	FIRA
TOTAL CATCH (KG)	149	1327	72	136	1613
ARROWTOOTH FLOUNDER	..	..	..	..	..
BUTTER SOLE	..	..	..	..	..
DOVER SOLE	T*	..	..	..	9*
ENGLISH SOLE	1*	3*	2*	2*	23*
PACIFIC HALIBUT	..	..	..	..	..
PACIFIC SANDDAB	..	..	T*	..	..
PETRALE SOLE	5*	..	..	..	..
REX SOLE	..	..	..	..	45*
ROCK SOLE	T*	..	2*	14*	23*
SAND SOLE	..	..	..	..	..
STARRY FLOUNDER	..	..	..	..	..
OTHER FLATFISH	..	..	..	..	..
S. ELONGATUS	1*	..	..	..	..
S. PRORIGER	..	2*	..	..	..
OTHER ROCKFISH	..	..	..	..	..
AMERICAN SHAD	..	..	..	..	..
CHINOOK SALMON	..	..	..	..	..
EULACHON	..	..	..	..	..
LINGCOD	14*	..	..	..	5*
PACIFIC COD	27*	181*	23*	91*	91*
PACIFIC HERRING	..	..	..	..	..
PACIFIC TOMCOD	1*	2*	..	T*	14*
PLAINFIN MIDSHIPMAN	..	..	..	..	T*
POACHERS	..	..	..	..	..
SCULPINS	T*	..	..	..	..
SHINER PERCH	..	..	..	..	20*
WALLEYE POLLOCK	..	..	..	..	23*
OTHER ROUNDFISH	..	..	..	..	..
RATFISH	2*	5*	..	5*	1270*
SKATES	5*	..	..	..	45*
SPINY DOGFISH	91*	1134*	45*	23*	45*
OTHER SELACHII	..	..	..	..	..
INVERTEBRATES	2	..	T	1	T

APPENDIX TABLE 2 CONTINUED

HAUL NO.		11	12	13	14	15
DATE		MAR 9	MAR 9	MAR 10	MAR 10	MAR 10
AREA		FIRA	FIRA	CLO	CLO	CLO
START TIME	(PST)	1148	1608	0955	1157	1300
DURATION	(MIN)	20	2	30	40	30
START N. LAT.	(DEG)	048	048	048	048	048
	(MIN)	52.7	53.1	38.0	37.9	38.3
W. LONG.	(DEG)	125	125	124	124	124
	(MIN)	47.2	40.3	51.8	51.6	54.3
DIRECTION (DEG.TRUE)		210	000	304	308	098
FINISH N. LAT.	(DEG)	048	000	048	048	048
	(MIN)	51.8	00.0	38.8	38.7	38.0
W.LONG.	(DEG)	125	100	124	124	124
	(MIN)	48.0	00.0	54.0	53.7	51.6
HAUL DISTANCE (N.M.)		1.0	0.0	1.8	1.6	1.8
DEPTH	(FATHOMS)	36- 34	22- 22	26- 27	25- 26	28- 25
	(METERS)	65- 62	40- 40	47- 49	45- 47	51- 45
DEPTH INTERVAL	(FM)	30	20	20	20	20
TYPE OF GEAR		9	9	9	9	9
TOTAL CATCH	(KG)	1754	..	144	98	183
REMARKS		USABLE	SNAG UNUSABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 2 CONTINUED

HAUL NO.	11	12	13	14	15
DATE	MAR 9	MAR 9	MAR 10	MAR 10	MAR 10
AREA	FIRA	FIRA	CLO	CLO	CLO
TOTAL CATCH (KG)	1754	0	144	98	183
ARROWTOOTH FLOUNDER	..	..	..	..	..
BUTTER SOLE	..	..	54*	34*	23*
DOVER SOLE	..	..	..	..	..
ENGLISH SOLE	2*	..	2*	..	..
PACIFIC HALIBUT	4*	..	..	..	..
PACIFIC SANDDAB	..	..	..	..	..
PETRALE SOLE	..	..	..	..	..
REX SOLE	2*	..	..	..	..
ROCK SOLE	5*	..	..	..	..
SAND SOLE	..	..	..	..	..
STARRY FLOUNDER	..	..	1*	..	..
OTHER FLATFISH	..	..	..	..	..
S. ELONGATUS	..	..	..	..	..
S. PRORIGER	..	..	..	..	..
OTHER ROCKFISH	..	..	..	..	..
AMERICAN SHAD	1*	..	..	..	..
CHINOOK SALMON	..	..	3*	..	4*
EULACHON	..	..	..	..	..
LINGCOD	3*	..	..	..	..
PACIFIC COD	509*	..	14*	45*	113*
PACIFIC HERRING	..	..	T*	T*	T*
PACIFIC TOMCOD	1*	..	T*	T*	..
PLAINFIN MIDSHIPMAN	..	..	..	..	..
POACHERS	..	..	T*	..	..
SCULPINS	..	..	..	..	..
SHINER PERCH	1*	..	..	..	T*
WALLEYE POLLOCK	..	..	2*	..	1*
OTHER ROUNDFISH	..	..	..	..	..
RATFISH	1134*	..	9*	..	5*
SKATES	..	..	9*	..	9*
SPINY DOGFISH	91*	..	45*	14*	23*
OTHER SELACHII	..	..	..	..	..
INVERTEBRATES	1	..	5	5	5

APPENDIX TABLE 2 CONTINUED

HAUL NO.		16	17	18	19	20
DATE		MAR 10	MAR 10	MAR 11	MAR 12	MAR 12
AREA		CLO	CLO	FIRA	SWC	SWC
START TIME	(PST)	1405	1513	1340	0825	0915
DURATION	(MIN)	30	25	33	20	20
START N. LAT.	(DEG)	048	048	048	048	048
	(MIN)	38.2	38.3	53.7	40.5	40.1
W. LONG.	(DEG)	124	124	125	125	125
	(MIN)	50.5	52.1	42.0	46.1	45.6
DIRECTION (DEG.TRUE)		293	118	083	113	293
FINISH N. LAT.	(DEG)	048	048	048	048	048
	(MIN)	39.1	37.5	54.5	39.7	40.9
W.LONG.	(DEG)	124	124	125	125	125
	(MIN)	53.3	50.2	40.0	45.2	47.2
HAUL DISTANCE (N.M.)		2.0	1.5	1.5	1.1	1.3
DEPTH	(FATHOMS)	22- 22	25- 25	36- 38	37- 35	40- 37
	(METERS)	40- 40	45- 45	65- 69	67- 64	73- 67
DEPTH INTERVAL	(FM)	20	20	30	30	30
TYPE OF GEAR		9	9	9	9	9
TOTAL CATCH	(KG)	479	106	318	127	100
REMARKS		USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 2 CONTINUED

HAUL NO.	16	17	18	19	20
DATE	MAR 10	MAR 10	MAR 11	MAR 12	MAR 12
AREA	CLO	CLO	FIRA	SWC	SWC
TOTAL CATCH (KG)	479	96	318	148	100
ARROWTOOTH FLOUNDER	..	..	..	..	..
BUTTER SOLE	91*	11*	..	..	..
DOVER SOLE	..	..	..	T*	..
ENGLISH SOLE	45*	3*	..	5*	..
PACIFIC HALIBUT	..	1*	..	..	..
PACIFIC SANDDAB	..	..	..	..	..
PETRALE SOLE	..	..	..	3*	..
REX SOLE	..	..	..	..	..
ROCK SOLE	..	2*	23*	5*	T*
SAND SOLE	181*	11*	..	..	..
STARRY FLOUNDER	9*	..	..	..	..
OTHER FLATFISH	..	..	..	..	..
S. ELONGATUS	..	..	..	T*	..
S. PRORIGER	..	..	..	..	..
OTHER ROCKFISH	..	..	..	..	..
AMERICAN SHAD	..	..	..	..	..
CHINOOK SALMON	..	5*	..	..	..
EULACHON	..	..	..	..	..
LINGCOD	..	..	..	18*	2*
PACIFIC COD	5*	T*	227*	22*	..
PACIFIC HERRING	1*	..	..	..	..
PACIFIC TOMCOD	1*	23*	T*	1*	T*
PLAINFIN MIDSHIPMAN	..	..	..	..	..
POACHERS	T*	..	..	..	..
SCULPINS	1*	..	..	..	..
SHINER PERCH	..	T*	T*	..	..
WALLEYE POLLOCK	T*	2*	..	..	..
OTHER ROUNDFISH	..	..	..	..	..
RATFISH	9*	1*	45*	..	..
SKATES	45*	5*	..	..	..
SPINY DOGFISH	68*	23*	23*	91*	91*
OTHER SELACHII	..	..	..	..	..
INVERTEBRATES	23	9	..	3	7

APPENDIX TABLE 2 CONTINUED

HAUL NO.		21	22	23	24	25
DATE		MAR 12	MAR 12	MAR 12	MAR 13	MAR 13
AREA		SWC	BIGB	FB	FIRA	FIRA
START TIME	(PST)	1010	1145	1445	0913	1300
DURATION	(MIN)	20	15	15	20	25
START N. LAT.	(DEG)	048	048	048	048	048
	(MIN)	40.8	35.5	29.8	51.3	54.2
W. LONG.	(DEG)	125	125	125	125	125
	(MIN)	45.1	37.2	25.9	46.8	41.0
DIRECTION (DEG.TRUE)		223	113	085	113	090
FINISH N. LAT.	(DEG)	048	048	048	048	048
	(MIN)	40.1	35.0	30.1	51.8	54.2
W.LONG.	(DEG)	125	125	125	125	125
	(MIN)	46.3	36.8	24.8	45.7	39.1
HAUL DISTANCE (N.M.)		1.1	0.7	0.7	0.9	1.4
DEPTH	(FATHOMS)	55- 50	39- 42	56- 52	34- 35	34- 35
	(METERS)	100- 91	71- 76	102- 95	62- 64	62- 64
DEPTH INTERVAL	(FM)	50	40	50	30	30
TYPE OF GEAR		9	9	9	9	9
TOTAL CATCH	(KG)	166	22680	9072	201	2906
REMARKS		USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 2 CONTINUED

HAUL NO.	21	22	23	24	25
DATE	MAR 12	MAR 12	MAR 12	MAR 13	MAR 13
AREA	SWC	BIGB	FB	FIRA	FIRA
TOTAL CATCH (KG)	166	22680	9072	201	2906
ARROWTOOTH FLOUNDER	..	..	..	..	..
BUTTER SOLE	..	..	..	..	..
DOVER SOLE	..	..	..	1*	..
ENGLISH SOLE	2*	..	..	2*	45*
PACIFIC HALIBUT	..	..	..	..	..
PACIFIC SANDDAB	..	..	..	..	..
PETRALE SOLE	1*	..	..	..	..
REX SOLE	1*	..	..	T*	..
ROCK SOLE	..	..	..	..	45*
SAND SOLE	..	..	..	..	..
STARRY FLOUNDER	..	..	..	..	..
OTHER FLATFISH	..	..	..	..	..
S. ELONGATUS	..	..	..	..	..
S. PRORIGER	..	..	..	..	..
OTHER ROCKFISH	..	..	..	..	..
AMERICAN SHAD	..	..	..	..	..
CHINOOK SALMON	..	..	..	..	..
EULACHON	..	..	..	..	..
LINGCOD	14*	..	..	..	14*
PACIFIC COD	23*	..	..	136*	2540*
PACIFIC HERRING	..	..	..	..	..
PACIFIC TOMCOD	T*	..	..	1*	1*
PLAINFIN MIDSHIPMAN	..	..	..	..	..
POACHERS	..	..	..	..	..
SCULPINS	..	..	..	..	..
SHINER PERCH	..	..	..	..	..
WALLEYE POLLOCK	..	..	..	2*	..
OTHER ROUNDFISH	..	..	..	..	..
RATFISH	..	..	..	..	..
SKATES	9*	..	..	45*	159*
SPINY DOGFISH	113*	22680*	9072*	14*	91*
OTHER SELACHII	..	..	..	..	..
INVERTEBRATES	3	..	..	T	11

APPENDIX TABLE 2 CONTINUED

HAUL NO.		26
DATE		MAR 14
AREA		CAB
START TIME	(PST)	1608
DURATION	(MIN)	17
START N. LAT.	(DEG)	048
	(MIN)	52.8
W. LONG.	(DEG)	125
	(MIN)	34.8
DIRECTION (DEG.TRUE)		131
FINISH N. LAT.	(DEG)	048
	(MIN)	52.4
W.LONG.	(DEG)	125
	(MIN)	34.3
HAUL DISTANCE (N.M.)		0.5
DEPTH	(FATHOMS)	33- 32
	(METERS)	60- 58
DEPTH INTERVAL	(FM)	30
TYPE OF GEAR		9
TOTAL CATCH	(KG)	46
REMARKS		USABLE

APPENDIX TABLE 2 CONTINUED

HAUL NO.	26
DATE	MAR 14
AREA	CAH
TOTAL CATCH (KG)	46
ARROWTOOTH FLOUNDER	..
BUTTER SOLE	..
DOVER SOLE	..
ENGLISH SOLE	..
PACIFIC HALIBUT	..
PACIFIC SANDDAB	..
PETRALE SOLE	..
REX SOLE	..
ROCK SOLE	23*
SAND SOLE	..
STARRY FLOUNDER	..
OTHER FLATFISH	..
S. ELONGATUS	..
S. PRORIGER	..
OTHER RUCKFISH	..
AMERICAN SHAD	..
CHINOOK SALMON	..
EULACHON	..
LINGCOD	..
PACIFIC COD	9*
PACIFIC HERRING	..
PACIFIC TOMCOD	T*
PLAINFIN MIDSHIPMAN	..
POACHERS	..
SCULPINS	..
SHINER PERCH	T*
WALLEYE POLLOCK	..
OTHER ROUNDFISH	..
RATFISH	..
SKATES	..
SPINY DOGFISH	14*
OTHER SELACHII	..
INVERTEBRATES	T

Appendix Table 3. Size composition (nos.) of tagged and released Pacific cod, by haul, PACIFIC EAGLE, Feb. 14-27 and Mar. 3-15, 1979. Number of fish with cysts indicated in brackets.

Fork length (cm)	Haul no. (79-1-)											
	7	13	14	15	16	18	19	20	21	22	23	24
16	-	-	-	-	-	-	1	-	1	-	-	-
17	-	-	-	-	-	1	0	1	0	-	-	-
18	-	-	-	1	-	0	0	1	1	-	-	-
19	-	-	-	0	-	0	0	0	3	-	-	-
20	-	-	-	0	-	1	0	0	3(2)	-	-	-
21	-	-	-	0	-	3	2	1	2	-	-	-
22	-	-	-	0	-	0	0	0	1(1)	-	-	-
23	-	1	-	0	-	0	0	0	3(2)	-	1	-
24	-	0	-	0	-	0	0	0	1	-	1	-
25	-	0	-	0	-	0	0	0	0	1	1	1
26	-	0	-	0	-	0	0	0	0	0	1	0
27	-	0	-	1	-	0	0	0	0	1	1	0
28	-	1	-	0	-	0	0	0	1	0	0	1
29	-	0	-	0	-	0	1(1)	0	0	0	1(1)	1
30	-	0	-	1	-	0	-	0	0	0	0	0
31	-	0	-	0	-	0	-	0	0	0	1(1)	1(1)
32	-	0	-	0	-	0	-	0	0	0	2(1)	1(1)
33	-	0	-	0	-	0	-	0	0	2(1)	8(3)	0
34	-	0	-	0	-	0	-	0	0	5(2)	2(2)	1(1)
35	-	0	-	0	-	0	-	0	0	3(3)	1	2(1)
36	-	0	-	0	-	0	-	0	0	5(1)	9(2)	1
37	-	0	-	0	-	0	-	0	0	5(2)	5(1)	4(1)
38	-	0	2(1)	0	1(1)	0	-	0	0	8(6)	11(5)	0
39	1	0	0	0	0	0	-	0	0	5(2)	10(4)	4(3)
40	0	0	0	0	0	0	-	1	0	11(3)	8(3)	0
41	0	0	0	0	0	0	-	0	0	6(1)	6(3)	2
42	0	0	0	0	0	0	-	0	0	6	3(1)	1
43	0	1	1	0	0	1	-	0	1	6(2)	11(4)	4(1)
44	0	3(1)	1(1)	0	0	0	-	0	0	5	3	0
45	0	1(1)	0	2	0	0	-	0	0	7(1)	8(2)	1(1)

Appendix Table 3 (cont'd)

Fork length (cm)	Haul no. (79-1-)											
	7	13	14	15	16	18	19	20	21	22	23	24
46	0	1(1)	0	0	2	0	-	0	1	4	2(1)	0
47	0	0	0	0	0	0	-	0	0	0	1	1
48	0	0	0	0	0	0	-	0	0	1	1	1
49	0	2(1)	0	0	1	0	-	0	1	2(1)	-	0
50	2(1)	1	1	0	0	0	-	1	-	1(1)	-	3(1)
51	5(2)	2	1(1)	0	1	1	-	0	-	1	-	-
52	1	2(1)	0	1	1	-	-	2	-	-	-	-
53	2(1)	2	0	1	0	-	-	1(1)	-	-	-	-
54	3	2	1	0	1	-	-	0	-	-	-	-
55	3	5	1	0	1	-	-	2	-	-	-	-
56	2(1)	1	2	2(1)	1	-	-	1	-	-	-	-
57	3	2	0	2	2	-	-	0	-	-	-	-
58	1	1	0	1	1	-	-	1	-	-	-	-
59	1	1(1)	0	0	-	-	-	2	-	-	-	-
60	1	0	1	1	-	-	-	1	-	-	-	-
61	-	2	-	-	-	-	-	-	-	-	-	-
62	-	2	-	-	-	-	-	-	-	-	-	-
63	-	-	-	-	-	-	-	-	-	-	-	-
64	-	-	-	-	-	-	-	-	-	-	-	-
65	-	-	-	-	-	-	-	-	-	-	-	-
66	-	-	-	-	-	-	-	-	-	-	-	-
67	-	-	-	-	-	-	-	-	-	-	-	-
68	-	-	-	-	-	-	-	-	-	-	-	-
69	-	-	-	-	-	-	-	-	-	-	-	-
70	-	-	-	-	-	-	-	-	-	-	-	-
71	-	-	-	-	-	-	-	-	-	-	-	-
72	-	-	-	-	-	-	-	-	-	-	-	-
73	-	-	-	-	-	-	-	-	-	-	-	-
74	-	-	-	-	-	-	-	-	-	-	-	-
75	-	-	-	-	-	-	-	-	-	-	-	-

Appendix Table 3 (cont'd)

Fork length (cm)	Haul no. (79-1-)											
	7	13	14	15	16	18	19	20	21	22	23	24
76	-	-	-	-	-	-	-	-	-	-	-	-
77	-	-	-	-	-	-	-	-	-	-	-	-
78	-	-	-	-	-	-	-	-	-	-	-	-
79	-	-	-	-	-	-	-	-	-	-	-	-
80	-	-	-	-	-	-	-	-	-	-	-	-
Total	25(5)	33(6)	11(3)	13(1)	12(1)	7(0)	4(1)	15(1)	19(5)	85(26)	98(34)	30(11)

Appendix Table 3 (cont'd)

Fork length (cm)	Haul no. (79-1-)											(79-2-)
	25	26	27	29	30	32	33	34	40	42	43	4
16	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-
20	1	-	-	-	-	-	-	-	-	-	-	-
21	-	-	1(1)	-	-	-	1	-	-	-	-	-
22	-	1	1	-	-	-	0	-	-	-	-	-
23	-	0	0	-	-	-	0	1	-	-	1(1)	-
24	-	2	0	1	-	-	0	0	-	-	0	-
25	-	1	0	0	1	-	0	0	-	-	0	-
26	-	0	0	0	1	-	1	0	-	-	0	-
27	-	0	1	0	1	-	0	0	-	-	0	1
28	-	0	0	0	1	-	0	0	-	-	0	0
29	-	0	0	0	0	-	0	0	-	-	0	1(1)
30	-	1(1)	1	0	0	-	0	0	-	-	0	0
31	-	1	0	1	1(1)	-	0	0	-	-	0	1
32	-	0	0	0	0	-	0	0	-	-	0	0
33	-	4(2)	0	0	0	-	1	0	-	-	0	0
34	-	1(1)	0	0	0	-	0	0	-	-	0	0
35	-	2(1)	0	0	1	-	2	0	-	-	0	1
36	-	5(2)	1	0	1	-	5(2)	1	-	-	0	0
37	-	9(2)	1	0	7	-	6(2)	0	-	-	0	5(2)
38	-	4(2)	1(1)	0	8(1)	-	4(2)	0	-	-	0	6(1)
39	-	6(3)	2	0	5	1	4(1)	0	-	-	0	6(2)
40	-	10(4)	2	0	11(1)	1	5	0	-	-	0	9(4)
41	-	14(5)	1(1)	0	10	1	4(2)	0	-	-	0	9(4)
42	-	9(2)	0	1	14	0	5(1)	0	-	-	0	7(1)
43	-	12(1)	0	0	19(5)	1	7(2)	0	-	-	0	10(4)
44	-	7	0	0	14(4)	2	2(1)	0	-	-	0	12(3)
45	-	13(3)	1	0	9(3)	0	5	0	-	-	0	9(7)

Appendix Table 3 (cont'd)

Fork length (cm)	Haul no. (79-1-)											(79-2-)
	25	26	27	29	30	32	33	34	40	42	43	4
46	-	4(2)	0	0	11(2)	0	2	1	1(1)	-	0	6
47	-	0	0	0	5(1)	0	1	1	0	-	0	5(3)
48	-	3(1)	0	0	6	0	4(2)	1	1	-	0	4(2)
49	-	3	0	0	2	0	0	0	0	-	0	4(2)
50	-	3	0	0	2	0	0	0	1(1)	1(1)	0	4
51	-	0	0	0	1	0	0	1	0	0	1	2(1)
52	-	1	0	0	0	0	1(1)	0	0	0	0	2
53	-	-	0	0	1	0	-	0	1	0	4(1)	0
54	-	-	0	1	0	1	-	0	-	0	2	0
55	-	-	2	-	1	0	-	0	-	0	1	0
56	-	-	0	-	-	0	-	0	-	0	1	0
57	-	-	0	-	-	1	-	0	-	0	3	0
58	-	-	0	-	-	0	-	0	-	0	0	0
59	-	-	1	-	-	0	-	0	-	1(1)	1	0
60	-	-	-	-	-	0	-	0	-	1	0	1
61	-	-	-	-	-	0	-	0	-	0	0	-
62	-	-	-	-	-	0	-	0	-	0	2	-
63	-	-	-	-	-	0	-	0	-	0	2	-
64	-	-	-	-	-	0	-	1	-	1	2	-
65	-	-	-	-	-	0	-	-	-	1	0	-
66	-	-	-	-	-	0	-	-	-	0	2	-
67	-	-	-	-	-	1	-	-	-	2	0	-
68	-	-	-	-	-	-	-	-	-	-	3	-
69	-	-	-	-	-	-	-	-	-	-	0	-
70	-	-	-	-	-	-	-	-	-	-	1	-
71	-	-	-	-	-	-	-	-	-	-	0	-
72	-	-	-	-	-	-	-	-	-	-	0	-
73	-	-	-	-	-	-	-	-	-	-	0	-
74	-	-	-	-	-	-	-	-	-	-	0	-
75	-	-	-	-	-	-	-	-	-	-	0	-

Appendix Table 3 (cont'd)

Fork length (cm)	Haul no. (79-1-)											(79-2-)
	25	26	27	29	30	32	33	34	40	42	43	4
76	-	-	-	-	-	-	-	-	-	-	0	-
77	-	-	-	-	-	-	-	-	-	-	1	-
78	-	-	-	-	-	-	-	-	-	-	-	-
79	-	-	-	-	-	-	-	-	-	-	-	-
80	-	-	-	-	-	-	-	-	-	-	-	-
Total	1	116(32)	16(3)	4(0)	133(18)	9(0)	60(16)	7(0)	4(2)	7(2)	27(2)	105(37)

Appendix Table 3 (cont'd)

Fork length (cm)	Haul no. (79-2-)													Total
	5	6	10	11	13	14	15	18	19	20	21	24	25	
16	-	-	-	-	-	-	-	-	-	-	-	-	-	2
17	-	-	-	-	-	-	-	-	-	-	-	-	-	2
18	-	-	-	-	-	-	-	-	-	-	-	-	-	3
19	-	-	-	-	-	-	-	-	-	-	-	-	-	3
20	-	-	-	-	-	-	-	-	-	-	-	-	-	5(2)
21	-	-	-	-	-	-	-	-	1	-	-	-	-	11(1)
22	-	-	-	-	-	-	-	-	0	-	-	-	-	3(1)
23	-	-	-	-	-	-	-	-	0	-	-	-	-	7(3)
24	-	-	-	-	-	-	-	-	0	-	-	-	-	5
25	-	-	-	-	-	-	-	-	1(1)	-	-	-	-	6(1)
26	-	-	-	-	-	-	-	-	0	-	-	-	-	3
27	-	-	-	-	-	-	-	-	1	-	1	-	-	8
28	1	-	-	-	-	-	-	-	1	-	0	-	-	6
29	0	-	-	-	-	-	-	-	2	-	0	-	-	6(3)
30	0	-	-	-	-	-	-	-	0	-	0	-	-	3(1)
31	1	1(1)	-	-	-	-	-	-	0	-	0	-	-	8(4)
32	0	0	-	-	-	-	-	-	0	-	1(1)	-	-	4(3)
33	1(1)	0	-	-	-	-	-	-	0	-	0	-	-	16(7)
34	3	1	-	-	-	-	-	-	1(1)	1(1)	0	-	-	15(8)
35	1	0	-	-	-	-	1(1)	-	0	-	0	-	-	14(6)
36	2(1)	0	-	-	-	-	0	1(1)	0	-	3(2)	-	-	34(11)
37	3	1	-	-	-	-	0	0	2(2)	-	2(1)	-	-	50(13)
38	2	4(2)	-	-	-	-	0	0	0	-	2	-	-	53(22)
39	6	1	-	-	-	-	1(1)	1(1)	1(1)	-	0	-	-	54(18)
40	2	1	-	1(1)	-	-	1(1)	0	2	-	2(1)	1	-	68(18)
41	1	1(1)	-	0	-	-	0	0	1	-	2	0	1(1)	59(18)
42	4(1)	0	-	0	-	-	0	0	1(1)	-	1(1)	0	2	54(8)
43	1	0	-	1	-	1	1	0	0	-	1	1	1	81(19)
44	0	0	-	2(1)	-	0	1	1	1	-	0	1(1)	0	55(12)
45	3	0	-	0	-	0	2(1)	0	-	-	0	1	1(1)	63(20)

Appendix Table 3 (cont'd)

Fork length (cm)	Haul no. (79-2-)													
	5	6	10	11	13	14	15	18	19	20	21	24	25	Total
46	1	1	-	0	-	2(1)	3(3)	0	-	-	1	0	3	46(11)
47	0	-	-	0	-	1	1(1)	0	-	-	0	1(1)	1	18(6)
48	0	-	-	0	-	2(1)	3(1)	0	-	-	0	1	5	33(7)
49	1	-	-	1	1	3(2)	1	0	-	-	1	0	1	24(6)
50	0	-	-	1(1)	1	1	3(3)	0	-	-	-	0	1	27(9)
51	1	-	-	1	0	4(2)	2(1)	3	-	-	-	1(1)	3(1)	31(9)
52	-	-	-	2(1)	1(1)	0	4(2)	3	-	-	-	0	2	23(6)
53	-	-	-	6(2)	0	2(1)	1	5(1)	-	-	-	1	4(1)	31(8)
54	-	-	-	2	0	2(1)	2	0	-	-	-	1	2	20(1)
55	-	-	2(1)	3	1	3	2	1	-	-	-	0	5(1)	33(2)
56	-	-	0	7(1)	3(2)	2	4(1)	3	-	-	-	3(1)	7	39(7)
57	-	-	0	5(2)	0	2	7(1)	4	-	-	-	1	6(1)	38(4)
58	-	-	0	3(2)	0	4	5(1)	4	-	-	-	0	6(1)	27(4)
59	-	-	1(1)	9(2)	0	4	8(1)	4	-	-	-	3(1)	7	43(7)
60	-	-	0	5	0	0	2	3	-	-	-	1	5(1)	22(1)
61	-	-	1	6	0	2	2	9	-	-	-	1	4	27
62	-	-	0	5	0	1	1	0	-	-	-	1	2	14
63	-	-	0	3	1	1	1	7	-	-	-	1	1	17
64	-	-	0	1	-	2	1	8	-	-	-	1	2	19
65	-	-	1	2	-	0	3	4	-	-	-	1	3	15
66	-	-	1	2(1)	-	1	0	6	-	-	-	0	1	13(1)
67	-	-	0	4	-	0	1	2	-	-	-	0	0	10
68	-	-	1(1)	1	-	0	0	0	-	-	-	0	0	5(1)
69	-	-	0	2	-	0	0	2	-	-	-	1	2	7
70	-	-	0	0	-	0	0	1	-	-	-	0	-	2
71	-	-	0	2	-	0	1	1	-	-	-	0	-	4
72	-	-	0	-	-	1	-	1	-	-	-	1	-	3
73	-	-	0	-	-	1	-	0	-	-	-	1	-	2
74	-	-	0	-	-	-	-	0	-	-	-	-	-	0
75	-	-	0	-	-	-	-	1	-	-	-	-	-	1

Appendix Table 3 (cont'd)

Fork length (cm)	Haul no. (79-2-)													Total
	5	6	10	11	13	14	15	18	19	20	21	24	25	
76	-	-	0	-	-	-	-	-	-	-	-	-	-	0
77	-	-	0	-	-	-	-	-	-	-	-	-	-	1
78	-	-	0	-	-	-	-	-	-	-	-	-	-	0
79	-	-	0	-	-	-	-	-	-	-	-	-	-	0
80	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Total	34(3)	11(4)	8(3)	77(14)	8(3)	42(8)	65(19)	75(3)	15(6)	1(1)	17(6)	25(5)	78(8)	1297(289)

Appendix Table 4. Size composition, by sex, of untagged Pacific cod (no. fish with cysts in brackets), Pacific Eagle, February 14-27 and March 3-15, 1979.

Fork length (cm)	Firing Range			Cabbage Patch		
	M	F	U	M	F	U
17	-	-	-	-	-	-
18	-	-	1	-	-	-
19	-	-	1(1)	-	-	-
20	-	-	1	-	-	-
21	-	-	0	-	-	-
22	-	-	2	-	-	-
23	-	-	3	-	-	-
24	-	-	0	-	-	-
25	-	-	0	-	-	-
26	-	-	0	-	-	-
27	-	-	0	-	-	-
28	-	-	0	-	1	-
29	-	-	0	-	1	-
30	1	-	0	-	0	1
31	0	-	0	-	0	0
32	0	-	0	-	0	0
33	0	-	0	-	0	0
34	0	-	0	-	0	0
35	0	1(1)	0	-	0	0
36	0	0	0	-	0	0
37	2(1)	1(1)	0	-	0	0
38	0	0	0	-	0	0
39	5(4)	1(1)	1(1)	-	0	0
40	1	3(2)	0	1	1	0
41	2(1)	2	1(1)	0	0	1
42	3(3)	5(4)	0	0	0	1
43	3(3)	4(2)	1(1)	0	0	0
44	0	3(1)	0	2	0	0
45	3(2)	3(1)	2	2	0	0
46	3(1)	3	1	1(1)	2	0
47	6	3(1)	0	0	0	1
48	7(2)	2(1)	0	0	1	2
49	7(5)	9(3)	2	3(1)	1	0
50	14(3)	11(3)	1	2	0	1
51	16(8)	6	1	1	0	2
52	21(7)	10(1)	3	6	2	2

Appendix Table 4 cont'd.

Fork length	Firing Range			Cabbage Patch		
(cm)	M	F	U	M	F	U
53	27(6)	20(2)	4	3(1)	1	2
54	24(6)	14(3)	2	2	7	0
55	24(4)	19(1)	1	8(2)	4	1
56	38(8)	29(1)	4	7	9	0
57	56(10)	31	6(1)	9(2)	5	3
58	52(5)	41(4)	5	4	11	1
59	61(7)	43(1)	5	5	15	0
60	51(7)	39(2)	4	6(1)	15	1
61	36(5)	58(2)	3	8(1)	18	1
62	44(5)	50(1)	5	2	7	1
63	36(4)	58(2)	6(1)	4	13	0
64	41(5)	39(2)	1	5	6	3
65	26(1)	35	1	2	6	1
66	20(1)	37(2)	2	2	4	1
67	18(1)	38	0	4(1)	3	1
68	18(1)	29	0	1	3	1
69	13(2)	24(1)	3	1	4	0
70	14	18	2	3	6	0
71	4	22	1	1	6	0
72	5	12	2	0	1	0
73	3	21(1)	0	1	5	1
74	1	8	2	2	5	-
75	1	10	1	0	1	-
76	1	3	0	1	1	-
77	2	3	0	-	0	-
78	-	5(1)	0	-	1	-
79	-	2	0	-	1	-
80	-	4	0	-	0	-
81	-	4	1	-	2	-
82	-	1	-	-	0	-
83	-	3	-	-	1	-
84	-	1	-	-	-	-
Total	710(118)	786(48)	82(6)	99(10)	179(0)	29(0)
% male	47			37		
% cysts	11			3		

Appendix Table 4 (cont'd)

Fork length	Southwest Corner			Clo-oose		
(cm)	M	F	U	M	F	U
17	-	-	2	-	-	-
18	-	2	1(1)	-	-	-
19	2	1	0	-	-	-
20	1	1(1)	1	-	-	-
21	1	2	2	-	-	-
22	4	6	3	-	-	-
23	5(2)	0	5(3)	-	-	-
24	1	0	1	-	-	-
25	3	3	3(1)	-	-	-
26	4	8(1)	8(1)	-	-	-
27	5	8	6	-	-	-
28	4	0	0	-	-	-
29	3(1)	0	3	-	-	-
30	0	3(1)	1(1)	-	-	-
31	2	0	1	-	-	-
32	3(2)	0	1	-	-	-
33	1(1)	0	3(1)	-	-	-
34	4(1)	3(1)	2	-	-	-
35	1	5(1)	3	-	-	-
36	7(2)	10(3)	13(8)	-	-	-
37	20(8)	6(3)	16(4)	-	-	-
38	15(8)	12(6)	27(13)	-	-	-
39	9(1)	13(5)	15(8)	-	-	-
40	13(5)	14(4)	16(6)	-	-	-
41	17(6)	17(4)	22(7)	-	-	-
42	13(1)	13(3)	27(3)	1(1)	-	-
43	14(6)	16(4)	31(3)	0	-	-
44	17(6)	25(7)	28(5)	0	-	-
45	9(2)	16(5)	24(3)	1(1)	-	-
46	8(2)	7(4)	20(3)	0	-	1
47	12	4(1)	14(1)	0	1(1)	1
48	5	8(2)	9(2)	0	0	0
49	7(2)	7(1)	11(5)	0	1	0
50	2(1)	4(1)	1	0	1(1)	0
51	3(3)	4(2)	6(1)	0	1	0
52	0	1	2(1)	0	0	1(1)

Appendix Table 4 cont'd.

Fork length (cm)	Southwest Corner			Clo-oose		
	M	F	U	M	F	U
53	4(1)	1(1)	1(1)	1(1)	0	0
54	2(1)	1	0	0	0	0
55	0	0	0	1(1)	1	0
56	0	1	1	0	0	0
57	0	0	0	1	0	1
58	1	1	0	0	0	-
59	1	1	2	1	0	-
60	1(1)	0	0	1	0	-
61	1	2	0	0	0	-
62	1	1	1	1	0	-
63	-	1	0	0	3	-
64	-	0	0	1	1	-
65	-	0	1	0	0	-
66	-	0	0	0	0	-
67	-	1	1	0	0	-
68	-	-	-	0	1(1)	-
69	-	-	-	1	0	-
70	-	-	-	0	0	-
71	-	-	-	1	0	-
72	-	-	-	-	0	-
73	-	-	-	-	0	-
74	-	-	-	-	0	-
75	-	-	-	-	0	-
76	-	-	-	-	0	-
77	-	-	-	-	0	-
78	-	-	-	-	0	-
79	-	-	-	-	2	-
80	-	-	-	-	-	-
81	-	-	-	-	-	-
82	-	-	-	-	-	-
83	-	-	-	-	-	-
84	-	-	-	-	-	-
Total	226(63)	229(61)	335(82)	11(4)	12(3)	4(1)
% male	50			48		
% cysts	26			30		

[a]Cysts not checked for on some fish: Firing Range U, n=23; Southeast Corner M, n=17; F, n=22; U, n=4.

Appendix Table 5. Pacific cod gonad condition, by sex, by haul, PACIFIC EAGLE cruises 79-1 and 79-2, Feb. 14-27 and Mar 3-15, 1979.

Gonad condition[a]	Haul no. 79-1-2 M	79-1-2 F	79-1-5 M	79-1-5 F	79-1-6 M	79-1-6 F	79-1-7 M	79-1-7 F
1 Immature	1	0	0	0	2(2)	2(1)	6(5)	1
2 Maturing	0	1	1	0	2	1(1)	5	0
3 Mature	0	0	0	0	1	1	1	1
4 Mature	4	3	8	8	6(1)	1	17(3)	24(1)
5 Ripe	0	4	0	6	3	2(1)	8	2
6 Spent	0	6	0	3	0	5	3(1)	24
7 Resting	5	4	2	1	6(2)	0	31(3)	15
Total	10(2)[c]	18(1)	11(0)	18(0)	20(5)	12(3)	71(12)	67(1)
% spawned[b]	56	59	20	22	38	56	58	57

Gonad condition	Haul no. 79-1-13 M	79-1-13 F	79-1-36 M	79-1-36 F	79-1-38 M	79-1-38 F	79-1-39 M	79-1-39 F
1	0	0	0	0	1	1	0	0
2	0	0	1	0	0	0	0	0
3	0	0	0	0	0	0	0	0
4	26(5)	60	0	4	0	7	2	8
5	9(1)	24	9	5	3	4	4	3
6	2	16	2	13	0	1	2	4
7	6(2)	0	5	1	0	0	2	0
Total	43(8)	100(0)	17(0)	23(0)	4(0)	13(0)	10(0)	15(0)
% spawned	19	16	44	61	0	8	40	27

[a]See Appendix Table 5 for description of maturity states.
[b]Spawned=spent + resting. Calculation does not include conditions 1 or 2.
[c]Numbers in parentheses are number of fish with cysts--condition unknown in haul 79-1-2 only.

Appendix Table 5 cont'd.

Gonad condition	Haul no. 79-1-40 M	79-1-40 F	79-1-41 M	79-1-41 F	79-1-43 M	79-1-43 F	79-2-1 M	79-2-1 F
1	5(1)	0	6(1)	2	2	0	7(5)	3(2)
2	0	0	1(1)	0	0	0	8(4)	0
3	0	0	0	0	0	0	1(1)	1(1)
4	0	0	0	1	1	6	0	3
5	0	0	0	0	7(1)	6	2	0
6	0	0	0	2	5	2	18(1)	37(1)
7	3(2)	0	1	1	2	0	45(5)	9
Total	8(3)	0	8(2)	6(0)	17(1)	14(0)	78(16)	53(4)
% spawned	100	-	100	75	47	14	95	98

Gonad condition	Haul no. 79-2-3 M	79-2-3 F	79-2-4 M	79-2-4 F	79-2-7 M	79-2-7 F	79-2-9 M	79-2-9 F
1	0	0	109(42)	101(41)	23(7)	29(12)	1	3
2	0	0	3	0	0	0	0	0
3	0	1	0	0	0	0	0	0
4	1	0	1	0	0	0	0	1
5	3	1	0	0	0	0	1	0
6	0	0	0	1	0	2	0	2
7	2	0	2	5	1	0	6	0
Total	6(0)	2(0)	115(42)	107(41)	24(7)	31(12)	8(0)	6(0)
% spawned	33	50	67	100	100	100	86	67

Appendix Table 5 cont'd.

Gonad condition	Haul no. 79-2-10 M	79-2-10 F	79-2-11 M	79-2-11 F	79-2-14 M	79-2-14 F	79-2-15 M	79-2-15 F
1	1(1)	2(2)	1	6(5)	0	0	0	2(2)
2	0	0	6(1)	4(4)	1(1)	0	1(1)	0
3	0	0	0	0	0	0	0	2(1)
4	0	3	6(1)	12	0	0	1	3
5	0	1	5	2	0	0	2	1
6	1	2	1	52	0	0	1	1
7	5(3)	0	75(15)	21(2)	1	2	4(2)	1
Total	7(4)	8(2)	94(17)	97(11)	2(1)	2(0)	9(3)	10(3)
% spawned	100	33	87	84	100	100	63	25

Gonad condition	Haul no. 79-2-18 M	79-2-18 F	79-2-19 M	79-2-19 F	79-2-21 M	79-2-21 F	79-2-24 M	79-2-24 F
1	1(1)	0	5(1)	12	10(2)	10(1)	3(3)	5(3)
2	1(1)	0	0	0	0	0	2(1)	1(1)
3	1	0	0	0	0	0	0	0
4	3	13	0	0	0	0	0	0
5	1	12	0	0	0	0	0	0
6	2	13	0	0	0	0	0	14
7	10	1	0	0	0	0	20(1)	3
Total	19(2)	39(0)	5(1)	12(0)	10(2)	10(1)	25(5)	23(4)
% spawned	71	36	-	-	-	-	100	100

Appendix Table 5 cont'd.

Gonad condition	Haul no. 79-2-25 M	Haul no. 79-2-25 F	Total M	Total F
1	26(17)	33(19)	210(88)	213(88)
2	17(8)	2(1)	49(18)	10(7)
3	2(2)	6(1)	6(3)	12(3)
4	54(4)	98(1)	130(14)	255(2)
5	37(2)	64	94(4)	137(1)
6	13(1)	208	50(3)	406(1)
7	229(19)	55	460(54)	119(2)
Total	378(53)	466(22)	999(184)	1,152(104)
% spawned	72	61	69	57

Appendix Table 6. Description of gonad condition states used for Pacific cod.

Code		Description
1	Immature:	testes string-like, translucent
		ovaries small, translucent
2	Maturing:	testes small, some proportionally large convolutions, translucent to white
		ovaries small, coloring
3	Mature:	testes large, convolutions firm, whitening
		ovaries large, opaque, creamy. Blood vessels prominent
4	Mature:	testes large, convoluted, white
		ovaries large, eggs visible, creamy-yellow
5	Mature: (ripe)	testes large, milt running white
		ovaries large, eggs translucent
6	Mature: (spent)	testes medium, convolutions flaccid, bloodshot
		ovaries medium, flaccid, bloodshot
7	Mature: (resting)	testes small, convolutions firm, translucent red or tan
		ovaries small, firm, black or grey

Appendix Table 7. Size composition (nos.) of walleye pollock, by sex, by haul, sampled during PACIFIC EAGLE cruises 79-1 and 79-2, Feb 14-27 and Mar 3-15, 1979.

Fork length (cm)	Haul no. 79-1-6 M	79-1-6 F	79-1-16 U	79-1-36 M	79-1-36 F	79-2-10 M	79-2-10 F
11	-	-	1	-	-	-	-
12	-	-	11	-	-	-	-
13	-	-	46	-	-	-	-
14	-	-	47	-	-	-	-
15	-	-	25	-	-	-	-
16	-	-	4	-	-	-	-
17	-	-	1	-	-	-	-
18	-	-	0	-	-	-	-
19	-	-	0	-	-	-	-
20	-	-	0	-	-	-	-
21	-	-	1	-	-	-	-
22	-	-	0	-	-	-	-
23	-	-	0	-	-	-	-
24	-	-	0	-	-	-	1
25	-	-	1	-	-	-	0
26	-	-	1	2	-	2	0
27	1	-	0	3	-	6	0
28	6	-	1	8	-	10	5
29	15	1	6	14	2	25	5
30	9	0	2	13	2	24	7
31	8	1	2	9	0	12	8
32	10	0	2	8	0	17	6
33	8	1	3	4	0	7	3
34	1	2	0	2	1	6	0
35	0	1	0	0	0	0	3
36	1	-	0	0	0	0	1
37	0	-	0	1	0	1	0
38	0	-	0	0	0	0	0
39	0	-	0	0	0	0	0
40	2	-	0	1	0	4	0
41	0	-	0	2	0	2	0
42	1	-	1	3	0	1	0
43	0	-	0	3	0	3	0
44	0	-	0	1	0	2	0
45	0	-	1	2	0	4	0
46	0	-	0	4	0	3	0
47	1	-	1	4	0	0	0
48	-	-	1	0	0	2	0
49	-	-	-	1	0	2	0
50	-	-	-	-	0	0	1
51	-	-	-	-	1	0	-
52	-	-	-	-	-	0	-
53	-	-	-	-	-	1	-
Total	63	6	158	85	6	134	40

Appendix Table 8. Size composition (nos.), of rockfish (Sebastes species), by sex, by haul, sampled during PACIFIC EAGLE cruises 79-1 and 79-2, Feb 14-27 and Mar 3-15, 1979.

	S. brevispinis		S. entomelas		S. paucispinis		S. pinniger		S. proriger	
	Haul no.									
Fork length[a] (cm)	79-1-31		79-1-31		79-1-43		79-1-13		79-1-31	
	M	F	M	F	M	F	M	F	M	F
15	-	-	-	-	-	-	1	-	-	-
16	-	-	-	-	-	-	1	-	-	-
17	-	-	-	-	-	-	0	-	-	-
18	-	-	-	-	-	-	0	1	-	-
19	-	-	-	-	-	-	2	1	-	-
20	-	-	-	-	-	1	2	4	1	-
21	-	-	-	-	1	2	5	2	1	-
22	-	-	-	-	1	0	4	1	7	1
23	-	-	-	-	-	0	7	6	10	3
24	-	1	-	-	-	1	1	11	29	8
25	2	-	-	-	-	-	1	4	16	17
26	-	-	-	-	-	-	1	1	9	19
27	-	-	1	-	-	-	1	0	1	5
28	-	-	-	-	-	-	0	1	2	3
29	-	-	-	-	-	-	1	-	1	1
30	-	-	-	-	-	-	1	-	3	0
31	-	-	-	-	-	-	-	-	1	1
32	-	-	-	-	-	-	-	-	0	-
33	-	-	-	-	-	-	-	-	1	-
Total	2	1	1	0	2	4	28	32	82	58

[a]Measured to nearest lower cm. 15 = 15.00 - 15.99.

Appendix Table 9. Occurrence, by haul, of fish species caught in trace quantity, PACIFIC EAGLE Feb. 14-27 and Mar. 3-15, 1979.

Species	Haul no. (79-1-)	Haul no. (79-2-)
Eulachon	6, 8, 11, 15, 38, 39, 42	-
Northern anchovy	9, 20	-
Pacific sandlance	7	-
Poachers	-	13, 16
S. ciliatus	6	-
S. entomelas	31	19
S. maliger	6	-

Appendix Table 10. Invertebrate catch summary - occurrence by haul, PACIFIC EAGLE, Feb. 14-27 and Mar. 3-15, 1979.

Species	Total catch (kg)	Haul no. (79-1-)													
		1	2	3	4	5	6	7	8	9	10	11	13	14	15
Jellyfish	T[a]										X				
Seapen	T											X			
Starfish	16						X	X	X	X	X		X		X
Basket, brittle stars	1														
Urchins	76								X	X				X	X
Sea cucumbers	6		X						X				X	X	X
Octopus	15														
Squid	103	X		X	X	X	X	X		X	X		X	X	X
Pink shrimp	T														
Sidestripe shrimp	T								X						
Crabs	54						X	X					X	X	

Appendix Table 10 (cont'd)

Species	Total catch (kg)	Haul no. (79-1-)													
		16	18	19	20	21	22	23	24	25	26	27	28	29	30
Jellyfish	T[a]														
Seapen	T														
Starfish	16		X		X			X	X	X	X			X	X
Basket, brittle stars	1						X	X							
Urchins	76					X	X	X	X	X	X	X	X	X	X
Sea cucumbers	6	X								X	X	X	X	X	X
Octopus	15														
Squid	103	X	X	X	X	X		X	X	X	X	X	X	X	
Pink shrimp	T	X													
Sidestripe shrimp	T														
Crabs	54		X												

Appendix Table 10(cont'd)

Species	Total catch (kg)	Haul no. (79-1-)												
		31	32	33	34	35	36	37	38	39	40	41	42	43
Jellyfish	T[a]													
Seapen	T													
Starfish	16							X				X	X	X
Basket, brittle stars	1													
Urchins	76		X	X	X						X	X	X	
Sea cucumbers	6	X	X	X			X				X	X		X
Octopus	15						X							
Squid	103		X	X	X	X	X	X	X	X	X		X	
Pink shrimp	T									X				X
Sidestripe shrimp	T													
Crabs	54		X								X			

Appendix Table 10 (cont'd)

Species	Total catch (kg)	Haul no. (79-2-)											
		1	3	4	5	6	7	8	9	10	11	13	14
Jellyfish	T[a]												
Seapen	T												
Starfish	16												
Basket, brittle stars	1												
Urchins	76			X		X		X					
Sea cucumbers	6	X		X					X		X		
Octopus	15												
Squid	103		X			X		X	X				
Pink shrimp	T												
Sidestripe shrimp	T									X	X		
Crabs	54									X			X

Appendix Table10 (cont'd)

Species	Total catch (kg)	Haul no. (79-2-)											
		15	16	17	18	19	20	21	22	23	24	25	26
Jellyfish	T[a]												
Seapen	T												
Starfish	16							X					
Basket, brittle stars	1												
Urchins	76					X	X	X					
Sea cucumbers	6					X	X	X			X	X	
Octopus	15											X	
Squid	103					X		X				X	X
Pink shrimp	T												
Sidestripe shrimp	T												
Crabs	54	X	X	X	X		X						

[a]T = Trace (less than 1 kg in any haul)

Appendix Table 11. Scientific and common names of fishes and invertebrates caught, PACIFIC EAGLE, Feb 14-27 and Mar 3-15, 1979.

Common name	Scientific name
Fishes:	
American shad	Alosa sapidissima
Chinook salmon	Oncorhynchus tshawytscha
Eulachon[a]	Thaleichthys pacificus
Lingcod	Ophiodon elongatus
Northern anchovy[a]	Engraulis mordax mordax
Pacific cod	Gadus macrocephalus
Pacific hake	Merluccius productus
Pacific herring	Clupea harengus pallasi
Pacific sandlance[a]	Ammodytes hexapterus
Pacific tomcod	Microgadus proximus
Plainfin midshipman	Porichthys notatus
Poachers[a]	Agonidae
Sablefish	Anoplopoma fimbria
Sculpins	Cottidae
Shiner perch	Cymatogaster aggregata
Walleye pollock	Theragra chalcogramma
Arrowtooth flounder	Atheresthes stomias
Butter sole	Isopsetta isolepis
Curlfin sole	Pleuronichthys decurrens
Dover sole	Microstomus pacificus
English sole	Parophrys vetulus
Flathead sole	Hippoglossoides elassodon
Pacific halibut	Hippoglossus stenolepis
Pacific sanddab	Citharichthys sordidus
Petrale sole	Eopsetta jordani
Rex sole	Glyptocephalus zachirus
Rock sole	Lepidopsetta bilineata
Sand sole	Psettichthys melanostictus
Starry flounder	Platichthys stellatus
Silvergray rockfish	Sebastes brevispinis
Dusky rockfish[a]	S. ciliatus
Greenstriped rockfish	S. elongatus
Widow rockfish	S. entomelas
Yellowtail rockfish	S. flavidus
Shortbelly rockfish	S. jordani
Quillback rockfish[a]	S. maliger
Bocaccio	S. paucispinis
Canary rockfish	S. pinniger
Redstripe rockfish	S. proriger
Ratfish	Hydrolagus colliei
Skates	Rajidae
Spiny dogfish	Squalus acanthias

[a]Species caught in trace quantity. See Appendix Table 9 for occurrence by haul.

Appendix Table 11 cont'd.

Common name	Scientific name
Invertebrates:	
Brittle stars	Ophiuroidea
Sea cucumber	Holothuroidea
Starfish	Asteroidea
Urchin	Echinoidea
Jellyfish	Discomedusae
Sea pen	Pennatulacea
Octopus	*Octopus dofleini*
Squid	*Loligo opalescens*
Crabs	*Cancer* spp.
Pink shrimp	*Pandalus jordani*
Sidestripe shrimp	*Pandalopsis dispar*